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Die geskiedenis van die PROVINSIALE VISSERYINSTITUUT, LYDENBURG (1948-1954)

deur S. S. du Plessis

GROND

DIE Provinsiale Visseryinstituut is geleë op die plaas Sterkspruit No. 159, twee myl suidoos van Lydenburg op 'n hoogte van 4,750 vt. Die gronde beslaan 50 morge waarvan 47 deur die Stadsraad van Lydenburg geskenk en 3 aangekoop is. Hiervan is 39 morge onderkant die watervoor geleë.

In November 1947 is die destydse Administrateur, Generaal J. J. Pienaar, deur die Lydenburgse Publisiteitsvereniging onthaal en by daardie geleentheid is die grond aan die Administrasie geskenk.

DAMME

In Mei 1948 het die Uitvoerende Komitee besluit om 'n teelstasie vir kouwatervis te Lydenburg op te rig. Die Paaie-afdeling het onderneem om die damme te bou en het reeds in Julie 1948 daarmee begin. Nadat hulle 8 gronddamme, 12 Daphniatenks en 20 ronde foreldamme voltooi het, kon die Paaie-afdeling nie verder met die kontruksiewerk aangaan nie. Die Besproeiingsdepartement is genader en hulle het onderneem om die werk te voltooi. In Januarie 1949 het 'n werkspan van die Besproeiingsdepartement van Groblersdal af oorgekom om die damme en vore verder te bou. Hierdie werk is in Februarie 1950 voltooi.

GEBOUE EN TERREIN

Toe visteelt hier begin is, was hier geen geboue nie en alle werk moes in die opelug geskied. Omdat onderhandelings oor sekere watermoeilikhede nog aan die gang was, kon geen permanente gebou opgerig word nie. Gevolglik is die werk ingestel op die gebruik van tydelike akkommodasie vir 'n onbeperkte tyd. Die Naturelle-arbeider het in 'n tent gewoon. 'n Hutjie van hout en gras is gebruik om vleis in te maal vir die forelle en om gereedskap in te bêre. 'n Kantoor is in die dorp, 2 myl van die terrein af, gehuur. In 1950 is vyf voorafvervaardigde rondawels opgerig waarvan een as kantoor, een as magasyn, een as laboratorium, en twee as woonkwartiere gedien het. Hulle is ontruim en verwyder toe die permanente geboue in November 1954 betrek is.

Die yskas waarin die forelle se vleis gehou is, het in mnr. F. C. Braun se geskiedkundige ou broeihuisie by die Munisipale Waterwerke gestaan. In 1951 is 'n tydelike broeihuis van skaalplanke met 'n sinkdak onderkant die ronde foreltenks opgerig en dit het gedien tot die einde van die 1954-broeiseisoen. 'n Tydelike garage van skaalplanke met 'n sinkdak is ook opgerig.

Toe die tydelike broeihuis vir somerbroei van foreleiers in Oktober 1951 op Makobulaan afgebreek is, is die hout gebruik om 'n werksplek op te rig. Die Naturelle-personeel het in 'n verskeidenheid van selfgeboude hutte gewoon. In September 1951 is 'n begin gemaak met die bou van Naturellehutte met kleimure en grasdakke. Toe dié bouprogram in 1953 voltooi is, was daar huise vir 12 families en een hut vir ongetroudes.

The history of the PROVINCIAL FISHERIES INSTITUTE, LYDENBURG (1948-1954)

by S. S. du Plessis

SITE

THE Provincial Fisheries Institute is situated on the farm Sterkspruit No. 159, two miles south-east of Lydenburg at an altitude of 4,750 ft. The site covers 105 acres, of which 99 were donated by the Lydenburg Town Council and six were purchased from a farmer.

In November, 1947, General J. J. Pienaar, then Administrator of Transvaal, visited Lydenburg and on that occasion the ground was donated to the Province.

DAMS

In May, 1948, Executive Committee decided to build a hatchery for coldwater fishes at Lydenburg. The Roads Department undertook to construct the dams and started work in July of that year. After they had completed eight earthen dams, 12 Daphnia tanks and 20 circular trout-rearing tanks they were not able to continue, and the Irrigation Department undertook to complete the job. In January, 1949, a construction team was transferred from Groblersdal. They completed the dams and furrows in February, 1950.

BUILDINGS AND GROUNDS

When fish culture commenced here in March, 1949, the dams were not completed yet and buildings were non-existent. All work had to be done in the open. Because negotiations about the water supply had not been completed no permanent buildings could be erected. The only Native labourer lived in a tent. A little hut of poles and grass which was used to prepare food for the fish also served as a general store-room and shelter during rainy weather. An office was hired in the town 2 miles away. In 1950 temporary accommodation was provided in the form of five prefabricated rondavels, of which one served as an office, one as a store-room, one as a laboratory and two as living quarters. They were evacuated when the permanent buildings were occupied in November, 1954.

The refrigerator in which the trout's meat was kept, stood in Mr. F. C. Braun's historical old hatching house at the Municipal Waterworks, the nearest point where electricity was available. A temporary hatching house with walls of split-poles and an iron roof which was erected in 1951 served until the end of 1954 trout season. A temporary garage was also built of the same material. When the temporary hatching house for the summer hatching of imported trout ova at Makobulaan Forest Reserve was dismantled in 1951, the timber was used to build a small workshop.

The Native staff lived in a variety of self-made huts until September, 1951, when the erection of permanent huts with clay walls and thatched roofs was started. At the completion of this building program in 1953, twelve families and ten unmarried labourers could be accommodated. When an adjoining piece of ground was bought in 1951 the house on it was occupied by the First Grade Technical Assistant.

'n Aangrensende stuk grond van 3 morge is in 1951 aangekoop en die woonhuis daarop is toe deur die Tegniese Assistent, Graad I, betrek.

Op 19 Februarie 1953 het 'n Provinsiale bouspan hier aangekom om 'n hoofgebou, akwarium, broeihuis vir foreleiers en drie woonhuise te bou. Die eerste woonhuise is betrek in Julie 1954 en op daardie stadium was die broeihuis en hoofgebou byna voltooi. Weens tegniese probleme in verband met die konstruksie is die bou van die akwarium vertraag, en die fondamente is eers in Augustus 1954 gelê. Die hele bouprogram sal waarskynlik vroeg in 1955 afgehandel wees.

Met die oog op drinkwater vir die woonhuise is 'n boorgat reeds in Mei 1951 gesink. In Maart 1953 is die boorgat toegerus met 'n pomp en drinkwatertenks.

Omdat die tuinierspos vakant gebly het, is daar gedurende die eerste paar jaar geen tuine aangelê nie. Onkruid is slegs uitgeroei en die gras op die terrein is gereëld gesny. Die damwalle is met kikuyugras beplant. In Februarie 1951 het die Paaie-afdeling gegruisde paaie op die terrein gebou. Die gruis is op die boonste deel van die terrein uitgehaal en die gruisgat is omskep in 'n mooi dam wat deur stormwater gevoed word. Nadat 'n wolkbreuk op 31 Maart 1951 skade aangerig het, is die stormwaterdreinering verbeter deur die bestaande stormwaterkanaal te verleng.

Loslating van eerste vis in die damme
19 Maart 1949.

Release of first fish into the ponds
19th March, 1949.

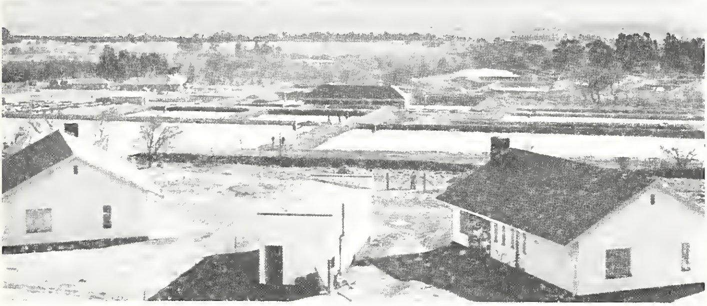
On 19th February, 1953, a Provincial building team arrived to build three dwelling-houses, a hatching house for trout ova, an aquarium and a main building comprising three offices, staffroom, library, three laboratories, a darkroom and outbuildings. The dwelling-houses were first occupied in July, 1954, and at that stage the hatching house and main building were almost completed. Due to various problems of construction the erection of the aquarium was considerably delayed and its foundations were only cast in August, 1954. It is hoped that the whole building program will be completed early in 1955.

In order to provide drinking water for the dwelling-houses a borehole was sunk in May, 1951, and equipped in March, 1953.

Because the post of gardener remained vacant no gardens were laid out during the first five years. Weeds were eradicated however and the grass was cut regularly. The new dam walls were planted with kikuyu grass. When the Roads Department built gravel roads on the site in 1951 they took gravel near the Native huts, and the resultant gravel pit was converted into an attractive dam, filled by stormwater. After a cloudburst on 31st March, 1951, caused damage, the stormwater drainage was improved by extending the existing drain.

During the first five years when no gardens were laid out yet a number of small game was kept. The best known and tamest of these was a grey rhebuck ewe which was reared here. Here were also duiker, steenbuck, one bushbuck ram and two blue cranes. On 4th November, 1950, a few chickens of the greyheaded gull were brought from Barberspan and reared here. Their noisy and cheeky nature amused everybody, until after a year they flew away, never to return. On the dams there are wild duck, spurwing geese, Nile geese and coots.

Boesman was the name of a little hippopotamus calf which was caught in the Olifants River and brought here on 19th January, 1952, and stayed until 11th December, 1952. Her playful habits endeared her to many visitors. She roamed freely amongst the dams and had a special



General view (July, 1954) prior to erection of aquarium:—
Foreground: Dwellings.
Centre: Temporary (left) and permanent hatching houses (right).
Background: Offices, laboratories, outbuildings (left).

Algemene uitsig (Julie 1954) vóór oprigting van akwarium:—
Voorgrond: Wonings.
Middel: Tydelike broeihuis (links) en permanente (regs).
Agtergrond: Kantore, laboratoria, buitegeboue (links).

Terwyl daar in die eerste paar jaar nog geen tuine aangelê was nie, is 'n paar wildsbokkies hier op die terrein aangehou. Die bekendste en makste onder hulle is 'n vaalribbokooi wat hier grootgeword het. Hier was ook duikers, steenbokkies, 'n bosbokram en twee bloukraanvoëls. Die duikers is later ernstig deur lewerslakke aangetas.

Op 4 November 1950 is 'n paar kuikens van die gryskopmeeu van Barberspan af gebring en hier grootgemaak. Hulle lawaaierige en astrante geaardheid het almal vermaak totdat hulle na 'n jaar weggetrek het. Op die damme swem ook wilde eende, makoue, kolganse en bleshoenders.

Die grootste aardigheid wat nog hier te sien was, was 'n jong seekoeiversie, Boesman, wat op 19 Januarie 1952 in die Olifantsrivier gevang is en tot 11 Desember 1952 hier gebly het. Deur haar spelerige geaardheid het sy aan almal groot vermaak verskaf en groot getalle besoekers gelok. Sy het vry rondgeloop en 'n spesiale Naturel gehad om haar op te pas en met melk, eiers en mieliepap te voer. Toe sy groot genoeg was, is sy na Loskopdam oorgeplaas.

WATERVOORSIENING

Toe die Stadsraad van Lydenburg die grond vir die Visseryinstituut aan die Provinsie geskenk het, het hulle die dorp se leiwater vir visteeltdoeleindes beskikbaar gestel. Die water sou dan in 'n pyplyn van die laaste visdam na die dorp gebring word. Nadat die damme reeds voltooi was, het daar verskeie moeilikhede tussen die Stadsraad en ander eienaars onder die watervoor ontstaan. Na langdurige samesprekings wat oor 5 jaar gestrek het, is 'n hofbevel uiteindelik op 8 April 1954 uitgereik wat al die grondeienaars wat Sterkspruit se water gebruik, tevrede gestel het. As gevolg van hierdie hofbevel sal daar vir die Visseryinstituut voldoende water beskikbaar wees sodra daar 'n behoorlike verdelingswal in die rivier opgerig is.

PERSONEEL

Toe die eerste vis op 19 Maart 1949 hier gebring is, het die personeel bestaan uit mnr. S. S. du Plessis met die rang van Vakkundige Beampte en Norman Dkhoza as Naturelle-arbeider. Die damme en vore was toe nog in aanbou en is eers op 22 Februarie 1950 voltooi. Daar was geen akkommodasie en gereedskap nie, en die werk moes onder uiters primitiewe omstandighede begin word. Die Naturelle-personeel is mettertyd aangevul tot vier. Dit was spoedig duidelik dat 'n nagwag noodsaaklik is om die plek snags op te pas, hoofsaaklik om toe te sien dat die watertoevoer na die verskillende damme gehandhaaf word. Op 25 Mei 1950 is die eerste Naturelle-nagwag, Koelie Mobena, aangestel.

Die eerste blanke assistent was mnr. T. C. Cronje wat vanaf 6 Januarie 1950 tot 7 September 1951 as 2de Graad Tegniese Assistent hier werksaam was. Mnr. G. J. P. Olivier wat in bevel van die bou van die damme en vore was, is op 1 Julie 1950 van die Besproeiingsdepartement as 1ste Graad Tegniese Assistent oorgeplaas. Mnr. C. J. du Plessis is op 12 Desember 1950 van die Padinspekteur se kantoor as 'n 2de Graad Tegniese Assistent oorgeplaas.

Die tweede pos van 2de Graad Tegniese Assistent is deur vier persone beklee voordat die Staatsdienskommissie dit in 1954 afgeskaf het. Mnr. F. P. J. Brits wat op 9 Junie 1952 as 2de Graad Tegniese Assistent aangestel is, is in September 1952 na Hartbeespoortdam verplaas. 'n Pos van tydelike faktotum was slegs gevul van Junie 1951 tot Maart 1953 en is in 1954 deur die Staatsdienskommissie ten gunste van twee permanente

Native caretaker who fed her on milk, eggs and "mieliepap". After she was big enough to be independent she was transferred to the Loskop Dam.

WATER SUPPLY

When the Lydenburg Town Council presented the ground for the Fisheries Institute to the Province, they made the town's irrigation water available for fish culture. After the dams were completed there was disagreement between the Town Council and other landowners who irrigate from the same river. After five years of negotiation the dispute was settled to the satisfaction of all concerned by an Order of Court, dated 8th April, 1954, which also assured the Fisheries Institute of an adequate water supply in future.

STAFF

When fish culture started here on 19th March, 1949, the staff consisted of Mr. S. S. du Plessis with the rank of professional officer and Norman Dkhoza as Native labourer. At that stage only a small portion of the dams was completed. Accommodation was non-existent and work was started with great enthusiasm under very primitive conditions. In due course the Native staff was increased to four. It was soon evident that a nightwatch was necessary to guard the place at night, mainly to watch the flow of water and to clean screens. The first night-watch, Koelie Mobena, was appointed on 25th May, 1950.

The first European assistant, Mr. T. C. Cronje, was appointed on 6th January, 1950, and resigned on 7th September, 1951. On 1st July, 1950, Mr. G. J. P. Olivier, who was in charge of the construction of the dams and furrows, was transferred from the Irrigation Department as First Grade Technical Assistant, while on 12th December, 1950, Mr. C. J. du Plessis was transferred from the Roads Department as Second Grade Technical Assistant. Mr. F. P. J. Brits who took up another post of Second Grade Technical Assistant on 9th June, 1952, was transferred to the Hartbeespoortdam hatchery in September, 1952. A post of temporary factotum which was filled from June, 1951, to March, 1953, was abolished by the

Circular rearing tanks for trout.

Ronde tenks vir die grootmaak van forelle.

voormansposte afgeskaf. Die pos van tydelike klerk was oorspronklik gevul deur mevr. A. C. Coetsee en sedert 17 Januarie 1951 deur mej. E. C. Claassen.

Na die aanstelling van mnr. A. A. Groenewald as Tydelike Assistent Vakkundige Beampte op 8 Augustus 1950 kon aandag gegee word aan navorsingswerk, alhoewel daar destyds nog maar baie geringe fasiliteite was. In 1952 is 'n addisionele pos van Tydelike Assistent Vakkundige Beampte geskep en mnr. P. J. le Roux het op 31 Julie 1952 in hierdie hoedanigheid begin werk. Die tydelike pos van tuinier is op 3 Januarie 1955 gevul deur mnr. M. J. van Biljon.

As gevolg van 'n Staatsdiensinspeksie op 15 September 1952 is die volgende permanente poste deur die Staatsdienskommissie goedgekeur vanaf 1 Februarie 1954:—

1 Senior Vakkundige Beampte.
1 Vakkundige Beampte.
1 Tegniese Assistent, Graad I.
1 Vroulike Klerk. Graad II.
2 Voormanne.

Die volgende poste bly in 'n tydelike hoedanigheid bestaan:—

1 Assistent-vakkundige Beampte.
1 Tuinier.
1 Tegniese Assistent, Graad II.

VISTEELT

Tot tyd en wyl die nodige personeel en fasiliteite vir navorsing daargestel was, was die eerste taak om vis te teel vir verspreiding in die waters van Transvaal. Aanvanklik was dit moeilik om te besluit watter soort die belangrikste plek moes inneem. Terwyl die teelt van uitheemse soorte soos forelle en swartbaars goed bekend was, was daar 'n totale gebrek aan kennis van belangrike inheemse soorte soos die geelvisse. Daarom is daar aanvanklik baie moeite gedoen om verskeie inheemse soorte te teel en te bestudeer. Namate die kennis van Transvaalse toestande en behoeftes egter toegeneem het, is sekere soorte uitgeskakel. en kon die aandag by soorte met 'n definitiewe waarde bepaal word.

Forelle.—Die eerste vis wat in die damme losgelaat is, was 40,000 klein forelle wat op 19 Maart 1949 hierheen gebring is. Hulle was afkomstig van eiers wat uit Engeland ingevoer is en in 'n tydelike broeihuisie in die Tweefontein-bosreserwe by Sabie uitgebroei is. Op daardie tydstip was die damme nog nie voltooi nie, en die watertoevoer na die ronde foreltenks het baie hoofbrekens veroorsaak.

Voordat ons eie broeivisse geslagsryp was, is foreleiers in die somers van 1949 tot 1950 en 1950-1951 vanaf Engeland en Switserland ingevoer. Die tydelike broeihuis is op die Makobulaan-bosreserwe opgesit en hier is die eiers uitgebroei. Op 26 Januarie 1950 het die Katrinasrust Trout Farm by Slaaihoek 'n kis eiers van die Amerikaanse beekforel uit New York ingevoer. Die eiers is ook op Makobulaan uitgebroei. Alhoewel die resultate baie swak was, het ons 'n aantal grootgemaak vir broeidoeleindes. Hulle eiers wou egter nie mooi afstroop nie en die teelt van beekforelle is laat vaar. Tagtig kleintjies wat in 1952 in een van die bolope van Sterkspruit losgelaat is, het goed gevorder en mnr. F. C. Braun het op 16 Desember 1953 reeds een van 1 lb. 4 onse daar gevang. In 1954 is 'n geskenk van 15,000 beekforeleiers van die Kaapse Provinsiale Administrasie ontvang. en hulle kleintjies is in verskeie klein bergstroompies losgelaat.

Civil Service Commission in 1954 in favour of two permanent posts of foremen. The post of temporary clerk was first held by Mrs. A. C. Coetzee and since 17th January, 1951, by Miss E. C. Claassen. The post of gardener was filled for the first time on 3rd January, 1955, by Mr. M. J. van Biljon.

After the appointment of Mr. A. A. Groenewald as temporary assistant-professional officer attention could be paid to research work, although at that time facilities were very limited. In 1952 an additional post of Assistant Professional Officer was created and Mr. P. J. le Roux assumed duty on 31st July.

After a Civil Service inspection on 15th September, 1952, the following permanent posts were approved by the Civil Service Commission as from 1st February, 1954:—

1 Senior Professional Officer.
1 Professional Officer.
1 Technical Assistant, Grade I.
1 Female Clerk, Grade II.
2 Foremen.

The following were retained as temporary posts:—

1 Assistant Professional Officer.
1 Gardener.
1 Second Grade Technical Assistant.

FISH CULTURE

Until such time as staff and facilities for research were available the first task of this Institute was to culture fish for distribution in the waters of Transvaal. In the beginning it was difficult to decide which types should receive preference. Whereas the culture of exotic species like trout and bass was well known, there was a total lack of knowledge on the culture of important indigenous species like the yellowfish. Therefore much trouble was taken to study and culture various indigenous species. As knowledge was gained of the conditions and requirements of Transvaal waters, however, attention could be concentrated on species of proven merit.

Trout.—The first fish to be released in the dams of this Institute on 19th March, 1949, were 40,000 rainbow trout and brown trout fingerlings. These fish were obtained from eggs imported from England and hatched in a temporary hatching house in the Tweefontein Forest Reserve near Sabie. When these fish arrived the rearing tanks were not completed yet, and the supply of water to these tanks gave much trouble.

Before our own breeders were sexually mature, trout ova were imported from England and Switzerland during the summers of 1949-50 and 1950-51. The temporary hatching house was shifted to the Makobulaan Forest Reserve where these ova were hatched. On 26th January, 1950, the Katrinasrust Trout Farm imported some ova of the American brook trout (*Salvelinus fontinalis*) and these were also hatched at Makobulaan. In spite of very poor results a number of brook trout were reared for breeding purposes. The eggs of these fish did not strip properly, however, and their culture was abandoned after two seasons. 80 Fingerlings released in the headwaters of Sterkspruit thrived well, and on 16th December, 1953, Mr. F. C. Braun caught one of 1 lb. 4 ozs. In 1954 a gift of 15,000 brook trout ova was received from the Cape Provincial Administration and the fingerlings were distributed in various small streams near Lydenburg. A few rainbow trout became sexually mature in 1950 and the first eggs were

In die winter van 1950 was 'n paar reënboogforelle al geslagsryp, en die eerste eiers is op 27 Mei afgestroop. Die teelt van die reënboogforel was uit die staanspoor baie suksesvol, en tot aan die end van die 1954-seisoen is daar reeds 808,000 jong forelle geproduseer, waarvan 707,000 in publieke waters losgelaat en 101,000 aan privaat persone verkoop is. Die reënboogforel is nie alleen in verskeie nuwe publieke waters gevestig nie maar het op die hoëveld ook 'n populêre damvis geword.

Geelvis.—Die Transvaal se eerste poging om geelvis te teel het in die Vrystaat in 'n paar dammetjies van die Besproeiingsdepartement onderkant Vaaldam se wal begin. Dit was 'n mislukking. Op 27 Augustus 1949 is 24 van hierdie vis (*Barbus holubi*) na Lydenburg gebring en die volgende somer is geelvis hier vir die eerste keer suksesvol geteel. Daardie somer het die geelvis verskeie kere gebroei en 8,000 kleintjies geproduseer. Sedertdien was die teelt van geelvis baie wisselvallig en dit wil voorkom of platannas die eiers opvreet. Hierdie vermoede is versterk toe geelvis in die 1954-55 somer baie kleintjies geproduseer het in 'n dam waar platannas uitgesluit was. Pogings om die grootbek-geelvis (*Barbus kimberleyensis*) te teel was tot dusver onsuksesvol.

Swartbaarse.—Toe visteeltwerk op Lydenburg begin is, was daar twyfel oor die wenslikheid van swartbaarse in Transvaalse waters, omdat niemand kon voorspel watter uitwerking hierdie vissoorte op ons waardevolle inheemse soorte sou hê nie. Namate toestande egter beter bekend geword het, het die grootbek-swartbaars in kombinasie met *Tilapia mossambica* in die laeveld en *Tilapia sparrmannii* op die hoëveld, 'n belangrike vis vir plaasdamme geword. Weens oorbevolking van die blouwangsonvis is die beroemde Amerikaanse grootbek-swartbaars–blouwang-sonvis kombinasie 'n totale mislukking in Transvaal. Aanvanklik is aldrie soorte swartbaarse, nl. die grootbek, kleinbek en gespikkelde baars, geteel. Eersgenoemde is van 'n dam van die Country Club in Pertoria en die laasgenoemde twee soorte van Jonkershoek verkry. Die kleinbek-swartbaars het tot dusver nog beperkte sukses getoon maar verdere proewe word onderneem. Die teelt van gespikkelde baars is in 1953 gestaak omdat dié soort van twyfelagtige waarde in Transvaalse waters is.

Die ou tydelike broeihuis (links) en die nuwe (regs)—Julie 1954.

The old temporary hatching house (left) and the new one (right)—July. 1954.

stripped on 27th May. From the start the rainbow was cultured with great success in spite of the limited facilities for hatching eggs; up to the end of the 1954 season 808,000 fingerlings were produced, of which 707,000 were released in public waters and 101,000 were sold to private persons. The rainbow trout not only became established in a number of new waters but also became a very popular fish for dams on the highveld, reaching a weight of up to 3½ lb. in 18 months.

Yellowfish.—Transvaal's first attempt to culture the famous Vaal River yellowfish started in Orange Free State in a number of small dams built by the Irrigation Department below the wall of Vaaldam. It was a failure. Twenty-four of these fish (*Barbus holubi*) were brought to Lydenburg on 27th August, 1949, and during the ensuing summer yellowfish were for the first time cultured successfully. They spawned several times during the summer and produced 8,000 fingerlings. Subsequently the culture of this fish proved highly unpredictable, and it is suspected that *Xenopus laevis* frogs prey on the eggs. This belief was strengthened when during the 1954-55 summer yellowfish produced many young in a dam from which these frogs were excluded. Attempts to culture the largemouth yellowfish (*Barbus kimberleyensis*) have so far been unsucccessful.

Black Bass.—When fish culture started at Lydenburg there was doubt about the desirability of the black basses in Transvaal waters, because nobody could foretell what effect they would have on valuable indigenous species. As our knowledge of conditions improved, however, the largemouth bass, in combination with *Tilapia mossambica* in the lowveld and *Tilapia sparrmanii* on the highveld, became an important fish for farm dams. Due to overcrowding of the bluegill sunfish, the famous American largemouth bass-bluegill combination is a total failure in Transvaal. At first three species of bass, namely largemouth, smallmouth and spotted bass were cultured. The former was obtained from a dam of the Country Club in Pretoria and the latter two from the Jonkershoek Hatchery

Netting of breeders in one of the ponds.

Net van broeivis in een van die damme.

Kurpers.—Tilapia mossambica, Tilapia melanopleura, Tilapia andersonii en *Tilapia sparrmanii* is sedert 1950 met groot sukses hier geteel. *Tilapia andersonii* is vanaf die Belgiese Kongo afkomstig terwyl die ander soorte in Transvaalse waters gevang is. *Tilapia sparrmanii* is die enigste kurper wat die winter op Lydenburg kan weerstaan en die ander soorte moes elke winter na die laeveld geneem word. Hier is hulle in privaat plaasdamme gehou tot die koue verby was. Tenspyte van aansienlike verliese was daar darem altyd genoeg broeivisse oor aan die end van die winter. In Mei 1954 was die damme by die laeveldse visteeltstasie te Marble Hall sover gevorder dat alle laeveldse kurpers daarheen oorgeplaas kon word.

Babers.—(Clarias mossambicus) is vir drie jaar onder observasie gehou en gedurende hierdie tydperk het hulle slegs enkele kleintjies geproduseer. Omdat die baber in die reëntyd dikwels oorland trek, is hulle almal vernietig uit vrees dat hulle in die rivier sal beland. Daar is nog niks bekend van hierdie vis se broeigewoontes nie.

Moddervis.—(Labeo capensis) wat ook sedert 1951 onder observasie is, het nog nooit gebroei nie.

NAVORSING

Navorsing word beskou as die eerste en belangrikste funksie van die Visseryinstituut, want doeltreffende bestuur van die Vissery is onmoontlik sonder die nodige wetenskaplike kennis van ons waters en visse. Uit die staanspoor was daar 'n groot behoefte aan 'n ordentlike klassifikasie van Transvaalse inheemse visse. Visse is in al die Transvaalse waters asook in Swasieland en Suidelike Mosambiek versamel. Dit sluit die Vaal-, Limpopo-, Ineomati-, Umbeluzi- en Groot Usutu-riviersisteme in. Die genus *Barbus*, populêr bekend as die geelvisgroep, bevat belangrike hengelvisse wat moeilik is om vanmekaar te onderskei en daarom word hulle eerste bestudeer. Die klassifikasie van hierdie groep is bykans afgehandel. Sodra al die inheemse soorte geklassifiseer is, sal die resultate as 'n populêr-wetenskaplike handboek en ook as 'n suiwer wetenskaplike werk gepubliseer word.

Intussen is twee belangrike vissiektes, nl. Ichthyophthiriasis (ook bekend as „ white spot ") en Columnaris (kiefverrotting) uitgeken en doeltreffend bestry. In Mei 1951 is 'n fuik in Potspruit opgestel om die bewegings en die groei van forelle te bestudeer. Terselfdertyd is die broeiplekke en die sukses van natuurlike vermeerdering ondersoek. Daar is vasgestel dat die rivier oorbevolk is met forelle, en in 'n poging om die populasie uit te dun, is 'n vermindering van die minimumlengte van 10 duim na 8 duim aanbeveel.

In Oktober 1953 is 'n studie van forelle in die Elandsrivier begin. Hier word elke jaar gemerkte forelle losgelaat. Deur middel van 'n volledige hengelsensus, deur die Waterval Boven Hengelklub gehou, word die persentasie gemerkte vis wat gevang word, bepaal. Die groei en voedsel van die vis en die natuurlike kosvoorraad in die rivier word terselfdertyd ondersoek. Dit blyk dat forelle wat hier losgelaat word, binne een jaar 14 duim lank word en meer as 50 persent van die gevangde vis uitmaak. Die studie gaan voort.

'n Voorlopige ondersoek na die voedsel van verskillende kurpersoorte in damme het getoon dat hulle diëet veelsydig, maar hoofsaaklik plantaardig is. Omdat platannas so verbasend vermeerder het in die damme van die Visseryinstituut, is 'n studie van hul maaginhoud begin om vas

near Stellenbosch, Cape. So far the smallmouth has had limited success in Transvaal, but further experimental stockings are being undertaken. Because of its doubtful value the culture of spotted bass was discontinued in 1953.

Kurper (*Tilapia*).—From 1950 to 1954 *Tilapia mossambica, Tilapia melanopleura, Tilapia andersonii* and *Tilapia sparrmannii* were cultured successfully here. *Tilapia andersonii* originated from the Belgian Congo and the other species were caught in Transvaal waters. *Tilapia sparrmannii* is the only species that can survive the winter cold of Lydenburg and every winter the others had to be removed to the lowveld, where they were kept in private farm dams until spring. In spite of heavy losses there always remained a sufficient number for breeding. In May, 1954, all warm water Tilapias were transferred to the new lowveld station at Marble Hall.

Barbel (*Clarias mossambicus*) was kept under observation for three years during which period they produced only a few young. Because the barbel travels overland in rainy weather they were destroyed for fear that they might escape into the nearest river. Nothing is known about the breeding habits of this important fish yet.

Mudfish (*Labeo spp.*) of which one species (*Labeo capensis*) is under observation since 1951 has not spawned in our dams yet.

RESEARCH

Because proper management of fishery resources is impossible without sound knowledge of the waters and fishes, research is regarded as the first and most important task of the Institute. From the start there was an urgent need for a proper classification of indigenous fish. Therefore, extensive collections were made in Transvaal, Swaziland and Southern Mozambique in order to cover the Vaal, Limpopo, Incomati, Umbeluzi and Great Usutu river systems. The *genus Barbus*, popularly known as the yellowfish group, contains valuable angling fishes which are hard to distinguish from one another and, therefore, the work started with a study of this genus, which classification is almost completed. Eventually the results of this work will be published both as a popular scientific book and a purely scientific treatise.

In the meantime two important fish diseases Ichthyophthiriasis (white spot) and Columnaris (gill rot) were studied and effectively controlled.

During the winters of 1951 and 1953 a two-way fish trap was installed in Potspruit, a trout stream near Lydenburg, in order to study the spawning migrations and growth of rainbow trout. Simultaneously the spawning grounds and success of natural spawning were investigated. The stream proved to be overpopulated with trout and a reduction in the minimum size from ten to eight inches was recommended. Another study of trout was started in the Elands River at Waterval Boven in October, 1953. Here marked trout are released every year, and the percentage of marked fish in the anglers' catch is determined through a complete creel census by the Waterval Boven Angling Club. The natural food supply of the river and growth and stomach contents of trout are also being studied. The limited data available to date indicate that this portion of the river is so rich in food on account of mild organic pollution that marked trout grow to 14 inches in one year. Hatchery fish form more than 50 per cent of the fish caught.

A preliminary survey of the food of various Tilapias in dams showed that their food, although variable, is mainly vegetable. Because of the

te stel of hulle visteelt affekteer. Dit blyk tot dusver dat hulle insekvreters is wat somtyds hoofsaaklik varswaterslakke vreet. Die larwes is planktonvretend.

In die winter van 1953 is drie jong witborsduikers (*Phalachrocorax lucidus*) by Loskopdam gevang en vir 40 dae op klein vissies gevoer om vas te stel hoeveel kos hulle per dag vreet en hoe vinnig hulle groei. Interessante waarnemings in verband met hulle gewoontes is ook gemaak.

Dit word beweer dat eende waterplante en bilharziaslakke doeltreffend kan beheer. Met die doel om meer hieromtrent uit te vind, word eende hier op 'n dam aangehou. Tot dusver blyk dit dat hulle net tot op 'n diepte van 2 voet kan bykom en tot hierdie diepte beheer hulle beide plante en slakke baie goed.

Die Merenskydam by Duivelskloof is 'n bekende hengeloord vir kurpers, maar hengelaars het gekla dat die vangste al swakker word. Ondersoek het getoon dat die dam oorbevolk is met kanariekurper (*Serranochromis thunbergi*) wat baie lastig is om die aas van hoeke af te vreet. Eksperimentele vangste met die „ Windermere Perch Trap ", 'n eenvoudige fuik wat in Engeland gebruik word, het getoon dat die kanariekurper doeltreffend met die fuik beheer kan word. In drie maande het 16 fuike 52,000 kanariekurpers gevang en die hengel na rooivinkurpers het baie verbeter.

In Mei 1952 is 'n aantal plaasdamme by Nelspruit met *Tilapia mossambica* en *Tilapia melanopleura* beplant in 'n poging om 'n metode van kurperboerdery vir leidamme te ontwikkel. Die vis is op afval-mieliepap en -groente gevoer. In die begin het hulle goed gegroei maar nadat hulle aangeteel het, was die damme oorbevolk en die groei onbevredigend. Een dam wat swartbaars en kurpers bevat het, het mooi kurpers van eetbare grootte gelewer, terwyl die kurpers in die ander damme klein en maer was. Dit is duidelik dat 'n roofvis noodsaaklik is om die kurpers se getalle te beheer. Sedert 1953 word sekere privaat plaasdamme waarin daar vis losgelaat is jaarliks ondersoek om vas te stel hoe hulle vorder.

Veldwerk het uit die staanspoor 'n belangrike deel van die Instituut se aktiwiteite uitgemaak omdat 'n deeglike kennis van toestande in die veld noodsaaklik is vir sukses. Veldwerk behels onder andere ondersoek van privaat en publieke waters met die oog op die invoer van vis of verbetering van die hengel, ondersoek na sterftes van vis en waterbesoedeling, verspreiding van vis en waarnemings op vis in die natuurlike staat.

Administrasie-blok. Administrative block.

amazing increase in Xenopus frogs in the dams of the Institute, their stomach contents were examined, and found to consist mostly of insects, but sometimes mainly aquatic snails.

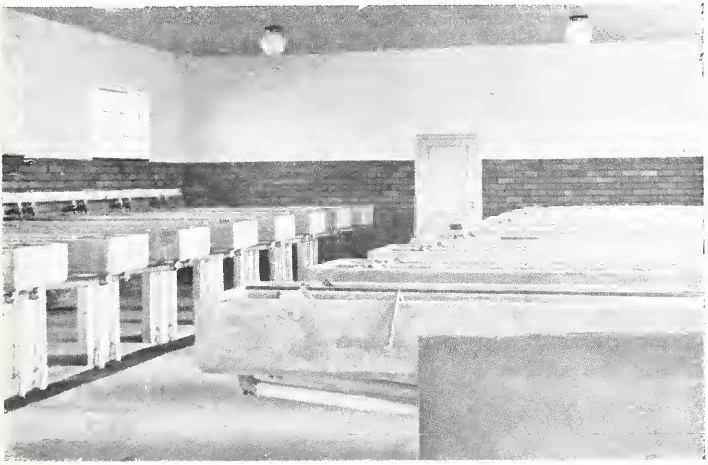
In the 1953 winter three young white-breasted cormorants (*Phalacrocorax lucidus*) were caught on Loskop Dam and fed on small fish for 40 days, in order to determine their growth and the weight of food they consume per day. Interesting observations were also made on their habits.

It is believed that ducks can control aquatic weeds and bilharzia snails effectively. In an attempt to gather information on this subject ducks are being kept on one of the dams where they have so far proved able to control weeds and snails down to a depth of 2 feet.

The Merensky Dam at Duivelskloof used to be a popular angling water for *Tilapia mossambica* until anglers started to complain about poor catches. A survey proved that the water was overcrowded with canary kurper (*Serranochromis thumbergi*). Experimental fishing with the Windermere Perch Trap used in England, proved that this fish can be effectively controlled with such traps; in three months sixteen traps caught 52,000 canary kurper, after which the fishing for Tilapia was greatly improved.

In an attempt to develop a method of Tilapia culture in the ordinary farm dam a number of small irrigation dams at Nelspruit were stocked with *Tilapia mossambica* and *Tilapia melanopleura* in May, 1952. These fish are being fed on waste mealie meal porridge and vegetables. After the first spawning the dams were so overcrowded that growth almost stopped. This condition was corrected by the introduction of largemouth bass which controlled the number with resultant growth of the fish to an edible size. Certain other private dams are inspected every year in order to observe the progress of fish released therein.

From the start field work formed an important part of the Institute's activities, because a thorough knowledge of conditions in the field is essential for success. Field work comprises, inter alia, surveys of public and private waters, investigations of fish mortality and pollution, distribution of fish and observations on fishes in their natural state.



Interior of hatching house. Binnekant van broeihuis.
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DIE TIERVIS (*Hydrocyon vittatus*)

deur A. A. v. J. Groenewald, M.Sc.

DIE tiervis het sy naam te danke nie so seer aan sy wrede voorkoms as aan die vegtersgees, wat hom beroemd gemaak het as die beste varswater-sportvis van Afrika. Sy vleis word soms beskrywe as „watte vol stopnaalde", maar nietemin draai hengelaars dikwels die rug op geelvis- en kurperwaters en lê honderde myle af om te gaan voel hoe boosaardig hierdie vis aan die hoek byt.

Saam met twee kleiner verwante species, *Micralestes acutidens* [Foto 3 (*c*)] en *Alestes imberi* [Foto 3 (*b*)], word dit in Transvaal aangetref alleenlik in die onderste gedeeltes van die Pongola-, Komati-, Krokodil-, Olifants- en Limpoporiviere. Verder noordwaarts kom dit ook voor in die Sambesierivier, waar dit heelwat groter word as in ons Transvaalse riviere. Alhoehoewel dit eintlik 'n stroomvis is, aard dit ewe goed in die laeveld-mere van Mosambiek.

Sy vaartbelynde liggaam, die bruin rug wat in die sonlig silwerblou glans, die roomkleurige sye met die silwer skynsel, die wit buik, die gitswart strepe langs die sye en die helder, oranje-rooi kleur van die vinne maak die tiervis een van die kleurvolste en sierlikste van ons inheemse vissoorte (Foto 1). Die swart strepe langs die sye en die gevaarlike tande moes ongetwyfeld bygedra het om aan die tiervis 'n naam te besorg, maar dit is egter die sterk kake wat eerste die aandag trek. Die tande is afgeplat, vlymskerp van voor en agter met naaldskerpe punte. Beide die bo en die onderkaak dra net 'n enkele ry tande. Die eerste en derde paar tande van die onderkaak en die tweede paar van die bokaak is groter as die res en dit verseker 'n dodelike greep op die prooi. Die tande sit ver uitmekaar en is so gerangskik dat hulle inmekaar sluit soos die tande van 'n slagyster. Wanneer een van die tande afbreek is daar dadelik 'n nuwe—veel korter en kleiner as

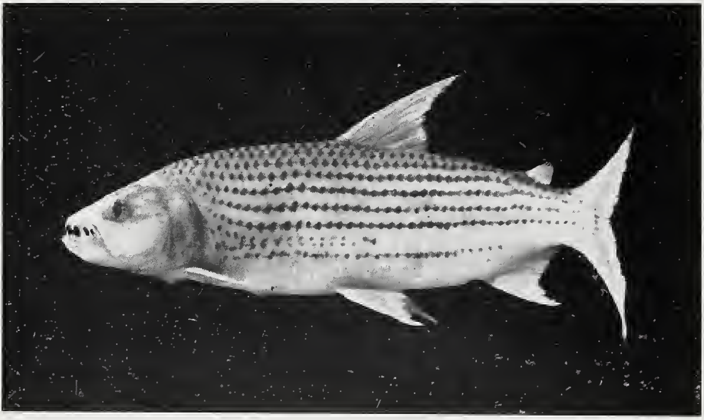

PHOTO 1: The Tiger-fish. FOTO 1: Die tiervis.

THE TIGER-FISH *(Hydrocyon vittatus)*

by A. A. v. J. Groenewald, M.Sc.

THE Tiger-fish owes its name not so much to its ferocious appearance, but to its fighting spirit, which has made it famous as the greatest freshwater gamefish of Africa. Even though its flesh is sometimes described as "cotton wool stuffed with darning needles", anglers often give Yellowfish and Kurper waters a cold shoulder and cover hundreds of miles to experience the vicious strike of this fish.

Together with two smaller species, *Micralestes acutidens* [Photo 3 (*c*)] and *Alestes imberi* [Photo 3 (*b*)] it is found in the Transvaal only in the lower stretches of the Pongola, Komati, Crocodile, Olifants and Limpopo Rivers. Further north, it also inhabits the Zambesi River where it grows considerably bigger than in our Transvaal rivers. Although actually a stream-fish, it thrives equally well in the Lowveld lakes of Mozambique.

Its streamlined body, the brown back which glistens silverish-blue in sunlight, the cream-coloured sides with their silvery sheen, the white belly, the jetblack lines along the sides and the bright, orange-red colour of the fins, make the Tiger-fish one of the most colourful of our indigenous species (see Photo 1). The black lines along the sides and the dangerous teeth undoubtedly must have contributed to furnish the Tiger-fish with a name, but it is, however, the strong jaws that first draw attention. The teeth are flattened, razor-sharp in front and behind, with needle-sharp points. Both the upper and lower jaw carry only a single row of teeth. The first and third pairs of the lower jaw and the second pair of the upper jaw are larger than the others and this ensures a firm grip on the prey (see Photo 2). The teeth are situate wide apart and are arranged so as to interlock like the teeth of a springtrap. When one of the teeth is broken off, its place is immediately taken by a new one which, however, is at first much shorter and smaller than the original. When the jaws are closed, the front teeth are visible externally. Each of these teeth fits into a groove on the outside of the opposite jaw (Photo 2) and, therefore, does not project above the surface of the jaws. To catch its prey the Tiger-fish often has to follow it among the reeds along the bank or in shallow water and many an angler has seen how a small Kurper leaps out of the water onto the shore in an attempt to escape its pursuer. The head of the Tiger-fish is well protected for these vicious charges. The eye is protected by a transparent cartilaginous shield, which covers the front and hind part of the eye-ball, leaving a vertical, oval-shaped opening over its middle (see Photos 1 and 2). This cartilaginous shield is continuous across the upper rim of the eye, but at its lower rim the front half overlaps the hind part. Over the large jaw-muscles, arising below and slightly behind the eye, there is a thin, superficial plate of bone, which is absent in other indigenous fishes. In this manner the most vulnerable areas of the head are completely protected. The jaws are hard and bony, both are long and movable and they can be opened wide to grasp the prey. Tiger-fish are mostly hooked on the outside of the mouth, on the jaws or in the eyes, and this fact may be explained as follows: most carnivorous fish first seize their prey crosswise in the mouth; with a swing of the head and a sideward movement of the tongue the grip on the victim is changed and it is grasped

die oorspronklike—om laasgenoemde se plek te vul. Wanneer die kake gesluit is, is die voorste tande uitwendig sigbaar. Elk van hierdie tande pas in 'n groefie aan die buitekant van die teenoorgestelde kaak en staan dus nie bokant die oppervlakte van die kake uit nie. Om sy prooi te vang moet die tiervis dit dikwels tussen riete langs die oewers of in vlak water agtervolg en menige hengelaar het al gesien hoedat 'n kurpertjie uit die water tot op die wal spring in 'n poging om sy agtervolger te ontduik. Die kop van die tiervis is goed beskerm vir hierdie wilde stormlope. Die oog word beskerm deur 'n deursigtige kraakbeenskild, wat die voorste en agterste gedeeltes van die oogbal bedek en 'n vertikale, ovaal-vormige opening oor die middel van die oog ooplaat (Foto's 1 en 2). Hierdie kraakbeenskild is aaneenlopend oor die borand van die oog, maar aan sy onderrand vou die voorste helfte oor die agterste helfte. Oor die groot kaakspiere, wat onder en skuins agter die oë ontspring, lê daar 'n dun, oppervlakkige beenplaat wat nie by ander inheemse vissoorte voorkom nie. Op hierdie manier is die mees kwesbare plekke aan die kop volkome beskerm. Die kake is hard en benig, beide is lank beweeglik en hulle kan wyd oopgesper word om die prooi te gryp. Tiervis word meestal aan die buitekant van die mond, aan die kake of in die oog gehaak en hierdie feit kan as volg verklaar word: meeste roofvisse gryp hulle prooi dwars in die mond om dan met 'n swaai van die kop en 'n sywaartse beweging van die tong die buit te vervat, dit aan die kop te gryp en in te sluk. Dit is om hierdie rede dat die tiervis so 'n goed-ontwikkelde tong het (Foto 2).

In vinnig-vloeiende water moet tiervis in die malende water aan die bopunte van poele gesoek word. Die beste tyd van die dag om hom te vang is soggens vroeg of laat namiddag. Dit byt na willekeur aan enige soort lepel sowel as aan dooie aas. In ons Transvaalse strome word tiervis selde swaarder as tien pond, maar nadat dit vasgeslaan is spook dit wild, spring uit die water terwyl die kop heen en weer geskud word in 'n poging om van die hoek ontslae te raak en is meer as 'n handvol totdat dit op droë

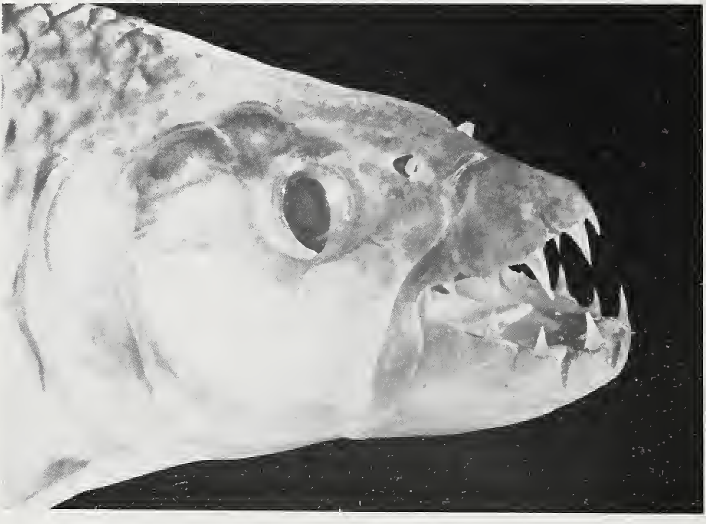

FOTO 2: Die kop van 'n tiervis. PHOTO 2: The head of a Tiger-fish.

by the head and swallowed. It is for this reason that the Tiger-fish has such a well-developed tongue (see Photo 2).

In fast-flowing water Tiger-fish must be sought in the eddies at the heads of pools. The best time of the day to fish for them is early morning or late afternoon. Tiger-fish take any kind of spoon as well as dead bait. In our Transvaal rivers it seldom grows heavier than ten pounds, but after being hooked it fights savagely, jumps out of the water shaking its head in an attempt to get rid of the hook and is more than a handful until safely landed. For the freshwater angler with light tackle and in search of excitement, this is angling at its best. The Natives of Mozambique catch Tiger-fish in a manner which leaves the angler dumbfounded. A stick with a line, hook and bait at the end, is continually beaten hard on the water and although this method is adopted mainly to catch Tiger-fish, even Yellow-fish and Kurper are often lured by the noise, to take the hook.

Little is known about the habits of the Tiger-fish. It is a warm-water fish and in those sections of our Eastern Transvaal rivers, where the water temperature drops unfavourably low during winter, observations indicate a definite upstream migration in early summer, possibly to spawn and a downstream migration during autumn when the water becomes cold again. Running water is probably not essential for spawning, because Tiger-fish also breed in the standing water of Lake Chuali in Mozambique. It is, however, unknown how and where the nests are made in lakes and rivers. The small ones move about in shoals and the different age groups usually do not intermingle. When they grow bigger, the shoals disperse in smaller groups and the big fish are often solitary.

In the Njelele Dam, in the Northern Transvaal Lowveld, angling leaves much to be desired at the moment and from anglers' reports it appears as if Kurper in this dam do not grow as big as in Loskop Dam. This water is probably over-populated with Kurper and as a carnivore, the Tiger-fish could not only play a very important rôle in reducing the number of Kurper, but will also contribute much to render angling more attractive.

The Tiger-fish, *Micralestes*, and *Alestes* are the only Transvaal representatives of the family Characinidae, to which also belongs the Piranha, the notorious South American man-eating fish—a relationship which is not surprising. The presence of a second dorsal fin distinguishes the Tiger-fish and its two smaller Transvaal relatives, from other indigenous species like Yellow-fish, Gillieminkies, Mud-fish and Kurper. *Micralestes* and *Alestes* are often mistaken for small Tiger-fish, but with the following simple key the three species may be easily distinguished from one another:—

A. Teeth with sharply-pointed crowns, situated wide apart and in a single row on the upper and lower jaw; about seven distinct, black longitudinal lines along the sides of body; more or less 46 scales in lateral line.

Hydrocyon vittatus—Tiger-fish.
[Photos 1, 2 and 3 (*a*)]

B. Crowns of teeth with more than one cusp, i.e. pluricuspid; teeth situate close together, more than one row of teeth on the upper jaw; 23-30 scales in lateral line.

(1) Two dark spots on the sides; one just behind the gill-cover above the lateral line and a larger one on the tail just in front of the tail-fin, the teeth of the second

grond lê. Vir die varswater-hengelaar met ligte gereedskap en op soek na opwinding is dit hengelsport op sy beste. Naturelle in Mosambiek vang tiervis op 'n manier wat die hengelaar sy hande laat saamslaan. 'n Stok met lyn, hoek en aas aan die punt word aanhoudend en hard op die water geslaan en alhoewel hierdie metode aangewend word hoofsaaklik net om tiervis te vang, word geelvis en kurpers soms ook deur die lawaai gelok om aan die hoek te byt.

Omtrent die gewoontes van die tiervis is nog min bekend. Dit is 'n warmwatervis en in daardie gedeeltes van ons Oos-Transvaalse riviere waar die watertemperatuur in die winter ongunstig laag daal dui waarnemings op 'n definitiewe stroomop-migrasie in die voorsomer, waarskynlik om te gaan broei, en 'n afwaartse migrasie in die na-somer wanneer die water weer begin koud word. Lopende water is blykbaar nie 'n vereiste om te broei nie, want in Chuali-meer in Mosambiek teel tiervis ook aan in staande water. Dit is egter onbekend hoe en waar die neste in riviere en mere gemaak word. Kleintjies beweeg in skole rond en die verskillende ouderdomsgroepe meng gewoonlik nie. Wanneer hulle groter word, breek die skole op in kleiner groepe en die groot visse is dikwels alleenlopers.

In Njeleledam in die Noord-Transvaalse laeveld laat hengel op die oomblik veel te wense oor en uit hengelaars-berigte wil dit voorkom asof kurpers hier nie so groot word as in Loskopdam nie. Die dam is blykbaar oorbevolk met kurpers en die tiervis kan as roofvis nie alleen 'n baie nuttige rol speel om die kurpers uit te dun nie, maar sal ongetwyfeld ook veel bydra om hengel in hierdie dam aantrekliker te maak.

Die tiervis, *Micralestes* en *Alestes* is die enigste Transvaalse verteenwoordigers van die familie Characinidae, waaraan ook die Piranha, die berugte Suid-Amerikaanse mensvretervis behoort—'n verwantskap wat 'n mens geensins verbaas nie. Die besit van die tweede rugvin onderskei die tiervis en sy twee kleiner Transvaalse verwante van ander inheemse soorte soos geelvisse, gillieminkies, moddervisse en kurpers. *Micralestes* en *Alestes* word dikwels aangesien vir klein tiervissies maar met behulp van die onderstaande eenvoudige sleutel kan die drie soorte maklik van mekaar onderskei word:—

A. Tandkrone skerppuntig, tande ver uitmekaar en in 'n enkele ry op die bo- en onderkaak gerangskik; ongeveer sewe duidelike swart strepe langs die sye; ongeveer 46 skubbe in sylyn.

Hydrocyon vittatus—Tiervis.
[Foto's 1, 2, en 3 (*a*).]

B. Tandkroon met meer as een punt d.w.s. veelkuspig; tande dig teen mekaar gerangskik, meer as een ry tande op die bokaak; 23 tot 30 skubbe in sylyn.

(1) Twee donker kolle langs sye; een net agter die kieudeksel bokant die sylyn en 'n groter een op die stert net voor die stertvin; die tande van die tweede ry op die bokaak platkronig soos 'n maaltand; maksimum lengte ongeveer 10 duim.

Alestes imberi—Tweekol-tiervis.
[Foto 3 (*b*).]

(2) 'n Enkele silwer-swart streep langs die sye; die tande van die tweede ry op die bokaak afgeplat en die tandkrone het skerp sny-rande.

Micralestes acutidens—Dwerg-tiervis.
[Foto 3 (*c*).]

row on the upper jaw flat-crowned and molar-like; maximum length about 10 inches.

Alestes imberi—Spotted Tiger-fish.
[Photo 3 (*b*).]

(2) A single silvery-black line along the sides; the teeth of the second row on the upper jaw simply compressed with a sharp-edged crown; maximum length, 4 inches.

Micralestes acutidens—Dwarf Tiger-fish.
[Photo 3 (*c*).]

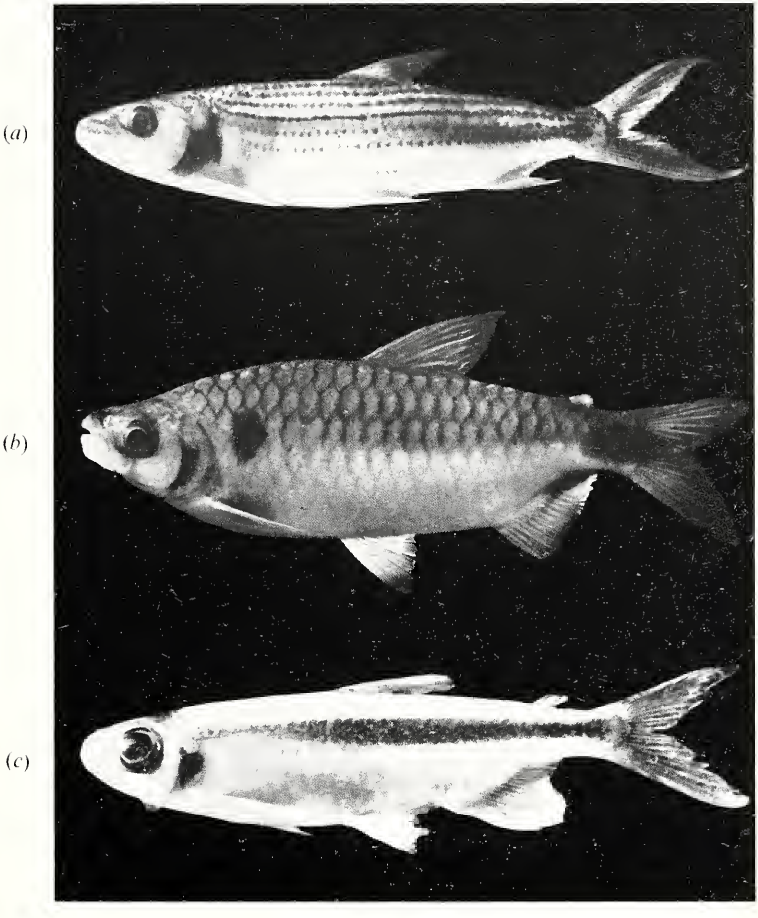

PHOTO 3 (*a*) A young Tiger-fish.
(*b*) The Spotted Tiger-fish.
(*c*) The Dwarf Tiger-fish.

FOTO 3 (*a*) 'n Jong tiervis.
(*b*) Die tweekol-tiervis.
(*c*) Die dwerg-tiervis.

Die swart kolle van *Alestes* en die horisontale streep van *Micralestes* is dikwels moeilik sigbaar in lewende eksemplare, maar gedurende preservasie word hulle donkerder en staan gevolglik baie duideliker uit in museum-eksemplare.

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The black spots of *Alestes* and the horizontal line of *Micralestes* are often very faint in living specimens, but are accentuated during preservation and consequently stand out much clearer in museum-specimens.

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FORELPROBLEME

deur P. J. le Roux

IN die goeie ou dae het ons almal geglo dat, of die forelle nou goed byt of nie, daar elke jaar weer klein vissies in die rivier gelos moet word. Die idee van kunsmatige beplanting van viswaters met klein vissies het mettertyd so posgevat dat baie waters elke jaar duisende klein forelle gekry het sonder dat iemand ooit gewonder het of dit nodig is, want destyds het ons geglo dat die natuurlike voortplanting nie voldoende was om die hengel in stand te hou nie. Namate navorsing op binnelandse visserye egter gevorder het, het wetenskaplikes dié stelsel ondersoek: hulle het die klein vissies gemerk voordat hulle losgelaat is en toe vind hulle uit dat in sekere riviere baie min van hulle ooit deur hengelaars gevang word, en dat die meeste vis wat gevang word, wilde vis is.

Daar is natuurlik uitsonderings soos mere, damme en riviere waar daar geen geskikte broeiplekke is nie, en waar die populasie slegs kunsmatig instand gehou kan word. Daar kan dus geen algemene beleid vir alle waters vasgelê word nie, maar elke water moet eers deeglik ondersoek word voordat 'n mens kan besluit of dit moet beplant word of nie.

In Transvaal is die reënboogforel hoofsaaklik in die boonste gedeeltes van bergstrome ingevoer waar vantevore slegs palings en gillieminkies gewoon het. Gedurende die eerste paar jaar het die forelle fantasties gegroei op die duisende gillieminkies en so vinnig vermeerder dat hierdie kosvoorraad spoedig uitgeput was. Dit was die tyd toe 'n hengelaar in 'n voormiddag meer forelle kon vang as wat hy kon huistoe dra.

Intussen is die gillieminkies feitlik totaal uitgeroei in die forelstrome en nou is die vis aangewys op insektevoedsel. Soos met meeste diere wat in 'n vreemde omgewing ingevoer word, het die forel die natuurlike ewewig wat deur die eeue in hierdie waters ontstaan het, omvergegooi.

Alhoewel daar forelstrome in Transvaal is wat elke jaar pragtige visse oplewer, is daar 'n aantal wat noukeurige studie en gereëlde aandag nodig het ten einde te verhoed dat hulle as hengelriviere waardeloos word.

In riviere waar daar onvoldoende broeiplek is, moet elke jaar klein vissies gelos word om die hengel in stand te hou. Omdat die forel meesal in kleiner riviere voorkom is dit ook moontlik om die vis in swaargehengelde waters so uit te dun dat daar aan die end van die seisoen nie genoeg broeistapel oorbly nie. Dan moet die populasie ook kunsmatig aangevul word. Die groot geheim is om te weet hoeveel vis om elke jaar in te sit. Dit kan vasgestel word deur gemerkte vissies van bekende lengte te los en hulle dan later weer te vang en hulle groei en kondisie te meet.

Die laer dele van die Elandsrivier by Waterval Boven is 'n goeie voorbeeld van 'n stroom wat elke jaar klein vissies moet kry omdat die forelle hier baie swak broei en terselfdertyd swaar gehengel word. Sulke waters vereis intelligente beheer van die hengel en die lokale hengelklub het streng reëls wat verseker dat die forelle nie te vinnig uitgevang word nie.

1. *Slegs drie visse per dag mag gehou word.*—Dit dien om die hengel oor die hele seisoen te versprei.

TROUT PROBLEMS

by P. J. le Roux

IN the good old days we all believed that fingerlings had to be released in the rivers annually, whether the fish were biting or not. This idea of artificial stocking became so firmly established that many streams received thousands of small trout annually with nobody ever wondering whether it was necessary or not, because we then believed that natural propagation was insufficient to maintain angling.

As research on inland fisheries progressed, however, scientists began to examine this system; they marked small fish before releasing them and then found that in certain rivers very few of them were ever caught by anglers and that most fish being caught were wild fish.

There are of course exceptions such as lakes, ponds and rivers, where spawning grounds are absent and where the population can only be maintained artificially. There can, therefore, be no general policy for all waters and every stream has to be properly examined before it can be decided whether it should be stocked or not.

In the Transvaal the rainbow trout has been introduced mainly into the upper reaches of mountain streams which were formerly inhabited only by eels and minnows. During the first few years the trout grew fantastically on the thousands of minnows and increased to such an extent that this food supply was soon exhausted. Those were the days when an angler could catch more fish in a morning than he could carry home.

In the meantime, however, the minnows had been exterminated in the streams and the fish had to fall back on insect food. As with most animals introduced into a foreign habitat, the trout disturbed the natural balance that had been established in these waters through the ages.

Although there are trout streams in the Transvaal that yield many fine fish annually, some of them require careful study and regular attention to prevent their becoming useless as angling waters.

In rivers where there are insufficient spawning places, small trout have to be released annually to maintain the fishing. Because trout occur mostly in smaller rivers it is also possible to decimate their numbers to such an extent by heavy angling that insufficient brood stock is left over at the end of the season. The population must then also be replenished artificially. The secret is to know how many fish to stock yearly. This can be ascertained by releasing marked fish and recapturing them after a certain time to measure their growth and condition.

The lower part of the Elands River at Waterval Boven is a good example of a stream that has to be stocked annually, because the fish breed very poorly and they are also subjected to very heavy angling pressure. Such waters need intelligent management and the local angling club has strict rules to ensure that the trout are not caught out too fast:—

1. *Only Three Fish may be Kept Daily.*—This serves to distribute the angling over the whole season.
2. *The Minimum Length of Fish that may be Kept is Eleven Inches,* shortly to be increased to twelve inches. Thus, only the larger fish are caught at the start of the season, giving the younger fish a chance to grow to angling size later in the season.

2. *Die minimum lengte van vis wat gehou mag word is elf duim* en dit gaan eersdaags verhoog word na twaalf duim. Hierdeur word slegs die grootste visse aan die begin van die seisoen gevang terwyl die kleineres kans kry om hengelbare grootte te bereik.
3. *Aan die end van die forelseisoen moet elke hengelaar 'n opgawe gee van die lengte en gewig van elke vis gevang.*

Hierdie laaste reël is veral van belang vir die beheer van die water aangesien dit 'n weergawe is van die resultate wat behaal is. Dit is baie belangrik om te weet hoeveel vis die hengelaar se net bereik en wanneer. Slegs dan kan die water se werklike produktiwiteit vasgestel word.

Die sleutel tot die intelligente bestuur van 'n forelwater lê in die studie van die populasie van die rivier. Dit behels die getalle, gewig, ouderdom, groei en kondisie van die vis in die rivier. Hiervoor benodig die bioloog baie eksemplare, en omdat hengelaars oor die algemeen nog onverskillig is, moet hy maar sy eie visse vang. In die verlede was dit 'n moeilike taak want hoeke, nette en fuike is selektief m.a.w. hulle vang nie verteenwoordigende monsters van die populasie nie. Deesdae word elektrisiteit egter met groot welslae vir dié doel gebruik. Die groot voordeel van hierdie metode is dat dit nie selektief is nie. Bowendien word die vis slegs tydelik verlam en kan na ondersoek weer teruggesit word in die water.

Indien die populasie binne die perke van die drakrag van 'n rivier is, sal daardie water goeie resultate lewer. Maar as die populasie hierdie grens oorskry, dan tree allerhande komplikasies in.

Drie mooi reënboogforelle uit die Elandsrivier—die resultaat van intelligente beheer van hengelwaters.

Three splendid rainbow trout from the Elands River—the result of intelligent management of angling waters.

3. *At the end of the season every angler must submit a return stating the length and weight of every fish caught.*

This last rule is of special importance to the management of the water as it gives a picture of the results obtained. It is very important to know how many fish reach the anglers' creels, as then only can the productivity of the water be ascertained.

The key to the intelligent management of a stream lies in the study of the fish population. This embraces the numbers, weights, ages, growth and condition of the fish in the river. For this purpose the biologist needs

This waterfall at Waterval Boven forms a barrier to migrating fish.

Watervalle soos hierdie een by Waterval Boven vorm onoorkomelike hindernisse vir visse wat wil trek.

Die visse kry nie genoeg voedsel nie en gevolglik duur dit langer voordat hulle die wetlike houbare lengte bereik. Die toestand word verder versleg deurdat hengelaars so 'n water vermy omdat daar so min vis van ordentlike grootte is. Die eindresultaat is 'n populasie van verpotte vissies wat nutteloos is vir die hengelaar.

So 'n toestand het geheers in die Potspruit naby Lydenburg, waar 'n fuik opgestel was ten einde gegewens aangaande die populasie in te win. Hier was net 4 persent van die populasie tien duim en langer m.a.w. beskikbaar vir hengelaars.

Hierdie toestand kan net deur die moeilike proses van uitdunning verbeter word. In hierdie geval is die minimum lengte afgebring tot agt duim, waardeur 40 persent van die bevolking tot beskikking van die hengelaar gestel word.

Dit is die visse langer as agt duim wat broei en die verlaging van die wetlike lengte bring dus mee dat daar nie alleen meer vis deur die hengelaars verwyder word nie, maar dat die nageslag ook beperk word. Met genoeg ondersteuning van die kant van die hengelaars behoort hierdie dubbele uitdunning mettertyd die gewenste effek te hê en die populasie af te bring tot die normale. Dit kan egter ook met behulp van elektrisiteit gedoen word.

Dit is dus duidelik dat die produktiwiteit van 'n rivier nie noodwendig verhoog word deur die beplanting van 'n hoeveelheid klein vissies elke jaar nie, maar dat die opbrengs van 'n stroom afhang van die water se vermoë om voedsel te verskaf vir die vis. Hierdie draagkrag van 'n stroom is die beperkende faktor waarna die populasie gereël moet word. Dit is dus slegs deur 'n grondige studie van al die verskillende faktore, en deur noue samewerking tussen die hengelaar en die wetenskaplike, dat die waters ten volle ontgin kan word.

large numbers of specimens and because anglers are in general still disinterested, he has to collect his own. In the past this was difficult because hooks, nets and traps are selective, i.e. they do not capture representative samples of the population. Nowadays, however, electricity is used with great success. The main advantage of this method is that it is not selective and in addition, the fish are only temporarily stunned and can be replaced in the water after examination.

If the population of a stream is within the carrying capacity of the water, that stream will yield good results. But if the population exceeds that limit, all kinds of complications develop.

The fish do not get enough food and it takes longer for them to reach legal size. The condition grows worse because anglers evade the stream on account of the small size of the fish. The ultimate result is a population of stunted fish of no angling value.

A condition like this occurred in the Potspruit near Lydenburg: only 4 per cent of the population was 10 inches and longer, i.e. available to the angler. This condition can only be relieved by the difficult process of thinning out the population. In the case under consideration the minimum legal length was brought down to eight inches, thereby increasing the legal sized fish in the population to 40 per cent.

The fish longer than eight inches were mostly spawners and the lowering of the size limit had the effect, not only of having more fish removed by the angler, but also of limiting the progeny. With enough support from the anglers, this should have the desired effect of decreasing the population to the normal level. It could, however, also be done with electricity.

It is clear, therefore, that the productivity of a stream is not necessarily increased by the addition of numbers of fry every year, but rather depends on the ability of the water to produce food for the fish. This carrying capacity of the water is the limiting factor that determines the size of the population. Therefore, it is only by a thorough study of all the different factors and by close coöperation between angler and scientist, that the waters can be fully exploited.

Die geskiedenis van die S. A. LOMBARD-NATUURRESERVAAT (1947-1955)

deur **Dr. N. J. v. d. Merwe**

INLEIDING

TYDENS die tweede wêreldoorlog het dit vir die Transvaalse Provinsiale Administrasie onmoontlik geword om nuwe, gemotoriseerde padmasjiene in te voer en tegelykertyd was dit ook baie moeilik om geskikte, geleerde muile te kry om skrapers en ander padgereedskap te trek. Die gevolg was dat daar besluit is om 'n plaas te koop waar muile geteel en geleer kon word om in hierdie behoefte te voorsien.

Na die totstandkoming van vrede kon die nodige masjiene egter weer ingevoer word sodat die muile en ook die plaas in onbruik verval het. Die gevolg was dat die Uitvoerende Komitee op 2 Oktober 1947 besluit het om uit te verkoop.

Gelukkig is daar met die verkoop van die grond gesloer en dit was tydens 'n besoek van die eertydse Konservator van Fauna en Flora, dr. T. G. Nel, dat die gedagte ontstaan het om dit te omskep in 'n wildplaas waar die inheemse soorte van Wes-Transvaal geteel kon word met die oog op later verspreiding in hierdie gebied. Hierdie besoek van dr. Nel het saamgeval met die openbare verkoping van die oorblywende gereedskap en diere op 28 Junie 1948.

Op 18 Augustus 1948 het die Uitvoerende Komitee sy eerste besluit in heroorweging geneem en besluit om die plaas nie te verkoop nie en op 19 Oktober 1948 is 'n memorandum van dr. Nel, waarin die omskepping na 'n wildplaas bepleit word, behandel. Daar is egter bevind dat meer besonderhede nodig is en eers nadat 'n tweede memorandum op 10 Februarie 1949 oorweeg is, is besluit om die versoek toe te staan en ook om £3,000 te bewillig om die ontwikkeling mee te begin.

'n Saak wat 'n belangrike invloed op die toekomstige ontwikkeling van hierdie inrigting gehad het, was 'n brief gedateer 25 Februarie 1949, van mnr. T. F. Hurley in sy hoedanigheid van sekretaris van die Nasionale Wolkwekersvereniging. Hierin word die Provinsiale Administrasie versoek om plek en geleentheid te skep vir navorsing oor ongedierte en veral met betrekking tot die rooijakkals. Die Uitvoerende Komitee het hierop gereageer deur hierdie inrigting daar te stel, waar daar nie alleen op ongedierte nie, maar ook op Transvaalse wild, navorsing gedoen kon word.

Uit erkentlikheid teenoor die destydse Provinsiale Sekretaris, vir wat hy vir die Afdeling Natuurbewaring maar veral vir Panfontein gedoen het, is die naam na „S.A. Lombard-natuurreservaat" verander en as sodanig op 8 September 1954 geproklameer.

The history of the S. A. LOMBARD NATURE RESERVE (1947-1955)

by Dr. N. J. v. d. Merwe

INTRODUCTION

DURING the Second World War it became impossible for the Transvaal Provincial Administration to introduce new, motorised road machinery while it was very difficult to obtain suitably trained mules to draw graders and other road plant. As a result it was decided to purchase a farm for raising and training mules to cope with this problem.

After the declaration of peace the importation of the required machines was, however, again possible and both the mules and the farm fell into disuse, with the result that on the 2nd October, 1947, the Executive Committee decided to dispose of the property.

Fortunately there was some delay in the sale of the land and during a visit of the former Conservator of Fauna and Flora, Dr. T. G. Nel, the idea originated of converting the said land into a game reserve where the indigenous species of the Western Transvaal could be reared with a view to later distribution in this area. This visit of Dr Nel coincided with the auction sale of the remaining machinery and animals on the 28th June, 1948.

On the 18th of August, 1948, the Executive Committee reviewed its first resolution and resolved not to sell the farm and on the 19th October, 1948, a memorandum by Dr. Nel, advocating its conversion into a game reserve, was dealt with. More details were, however, found to be necessary and only after the consideration of a second memorandum on the 10th February, 1949, was it decided to grant the request and also to vote £3,000 for launching the scheme.

A matter affecting the future development of this institution to a great extent was a letter, dated 25th February, 1949, from Mr. T. F. Hurley, in his capacity as Secretary of the National Woolgrowers' Association, requesting the Provincial Administration to provide a place and opportunity for research on vermin especially in relation to the red jackal. The Executive Committee's reaction to the request was the establishment of this institution where research could be carried out not only on vermin, but also on Transvaal game.

Out of gratitude to the then Provincial Secretary for what he had done for the Nature Conservation Section and especially for Panfontein, the name was changed to the " S.A. Lombard Nature Reserve " and proclaimed as such on the 8th September, 1954.

GRONDAANKOPE

Die oorspronklike muile-teelplaas, wat die grootste gedeelte van die huidige reservaat uitmaak, was 3,385 morg 818 vk. roede groot en was uit die volgende dele saamgestel:—

(*a*) Die resterende gedeelte van die plaas Boschpan No. 155, groot 1,141 morg 8 vk. roede.
(*b*) Gedeelte B van die suidelike gedeelte van die plaas Panfontein No. H.O. 270 groot 1,105 morg 508 vk. roede.
(*c*) Gedeelte C van die suidelike gedeelte van Panfontein, groot 1,139 morg 302 vk. roede.

Hierdie plaas het onder die naam „ Panfontein " bekend gestaan en is in 1921 deur dr. H. Hutchinson vir £4,196 17s. 6d. aangekoop, maar die Administrasie moes op 24 Maart 1944 'n bedrag van £12,500 aan hom daarvoor betaal.

Dit het egter gou duidelik geword dat die grond vir 'n wildplaas te beperk sou wees en daarom het die Uitvoerende Komitee op aandrang van die huidige Direkteur van Natuurbewaring, mnr. T. J. Steyn, op 5 Mei 1953 die aangrensende plaas van mnr. W. C. Geyer teen £6,752 aangekoop. Hierdie grond was 844·8112 morg groot en het bestaan uit—

(*a*) Gedeelte 13 van gedeelte C van die suidelike gedeelte van Panfontein No. H.O. 270, groot 43·4112 morg; en
(*b*) die resterende gedeelte van gedeelte A van Panfontein, groot 801·4 morg.

Tweedens is op 27 Augustus 1953 'n stuk grond van 185·6144 morg van mnr. J. P. Möller teen £1,299. 6s. aangekoop. Hierdie stuk was 'n gedeelte van gedeelte A van Boschpan No. 155. Met hierdie twee aankope is die totale oppervlakte van die reservaat op 4,417·7722 morg te staan gebring.

OMHEINING

Die hele oorspronklike wildplaas is met 8 voet hoë doringdraad toegespan. Hierdie groot werk is in Februarie 1952 deur die Plaasvoorman voltooi. Die nuwe aankope is nog op die gewone hoogte omhein aangesien daar nie wild gehou sal word nie. Die groot stuk word as ploeglande gebruik en die ander kleiner gedeelte dien as donkiekamp. (Die donkies word as kos vir jakkalshonde geslag.)

PERSONEEL

Na bekragtiging van die koop van die oorspronklike plaas is mnr. C. J. Cloete deur die Paaie-afdeling op 25 April 1944 hierheen gestuur as opsigter en aan die einde van die oordragtydperk het hy en mnr. D. J. Theunissen, destydse L.P.R. vir Christiana, Panfontein namens die Administrasie oorgeneem.

Op 15 Februarie 1950 is mnr. Cloete as Plaasvoorman na die Afdeling Fauna en Flora gesekondeer en het dus sodoende die eerste amptenaar van hierdie afdeling op Panfontein geword. Sy pligte het die algemene plaaswerk, omheining en die versorging van die wild- en plaasdiere behels.

Jakkalshonde word algemeen beskou as die beste beheermaatreël teen die rooijakkals en om dié rede is besluit om 'n teel-en afrigtingsdepot op Panfontein te stig. Op 27 September 1950 is mnr. D. C. Breed van die S.A. Polisie se Honde-depot, Kwaggapoort as die eerste tydelike hondemeester aangestel.

PURCHASES OF LAND

The original mule farm, comprising the greater part of the present reserve, was 3,385 morgen 818 square roods in extent and comprised the following: —

(*a*) The remaining extent of the farm Boschpan No. 155, in extent 1,141 morgen 8 square roods.

(*b*) Portion B of the southern portion of the farm Panfontein No. H.O. 270, in extent 1,105 morgen 508 square roods.

(*c*) Portion C of the southern portion of Panfontein, in extent 1,139 morgen 302 square roods.

This farm was known as " Panfontein " and was purchased by Dr. H. Hutchinson for £4,196. 17s. 6d. in 1921. The Administration, however, had to pay him £12,500 for it on the 24th March, 1944.

It soon became clear that the land would be too confined for a game reserve and the Executive Committee, therefore, purchased the adjoining farm from Mr. W. C. Geyer for £6,752 on the 5th May, 1953, at the instance of the present Director of Nature Conservation, Mr. T. J. Steyn. This land, in extent 844·8112 morgen, consisted of:

(*a*) Portion 13 of Portion C of the southern portion of Panfontein No. H.O. 270, in extent 43·4112 morgen; and

(*b*) the remaining Portion A of Panfontein, in extent 801·4 morgen.

Secondly a piece of land, in extent 185·6144 morgen, was purchased from Mr. J. P. Möller for £1,299. 6s. on the 27th August, 1953. This piece was a portion of Portion A of Boschpan No. 155. These two purchases brought the total area of the reserve to 4417·7722 morgen.

FENCING

The whole of the original game reserve was fenced in with 8 feet high barbed wire. This colossal task was completed by the Foreman in February, 1952. The new acquisitions were fenced at the usual height as no game would be kept there. The larger piece is used for lands under cultivation and the other smaller portion as a donkey camp. (The donkeys are slaughtered for food for fox-hounds.)

PERSONNEL

After confirmation of the purchase of the original farm Mr. C. J. Cloete was sent to Panfontein as caretaker by the Roads Branch on the 25th April, 1944, and at the end of the transfer period he and Mr. D. J. Theunissen, then M.P.C. for Christiana, took over the reserve on behalf of the Administration.

On the 15th February, 1950, Mr. Cloete was seconded to the Fauna and Flora Section as Farm Foreman and thus became the first officer of this section at Panfontein His duties embraced general farm work, fencing and care of the game and farm animals.

Foxhounds are generally considered the best means of control against the red jackal and for this reason the establishment of a breeding and training depot at Panfontein was decided upon. On the 27th September, 1950, Mr. D. C. Breed of the S.A. Police Dog Depot, Kwaggapoort, was appointed as the first temporary hound master.

Om 'n begin te maak met navorsing oor ongedierte is dr. N. J. v.d. Merwe op 29 Junie 1951 as assistent-vakkundige beampte aangestel. Na drie maande op hoofkantoor te Pretoria is hy as Senior Navorsingsbeampte na Panfontein verplaas.

Omdat mnr. Breed ná 2½ jaar diens besluit het om 'n ander betrekking te aanvaar, is mnr. C. A. Buys, Inspekteur van Fauna en Flora op 1 Maart 1953 tydelik na Panfontein verplaas om die werk by die honde-depot te kom waarneem.

Die werk by die depot het egter intussen so toegeneem dat mnr. P. van Zyl op 18 Junie 1953 as tweede, en mnr. D. E. Compion op 1 September 1953 as derde tydelike hondemeester aangestel is.

Mnr. Buys is aan die einde van 1953 terugverplaas na sy inspekteurswerk en op 1 Januarie 1954 het mnr. W. A. P. Putter sy plek as hondemeester ingeneem. Twee van hierdie poste het intussen as gevolg van 'n Staatsdiensinspeksie permanent geword en daar is alle hoop dat ook die derde binne afsienbare tyd permanent sal wees.

Op 5 Maart 1954 het Sy Edele die Administrateur, dr. Wm. Nicol, in geselskap van dr. Theo. Wassenaar, L.U.K., mnr. F. H. Odendaal, L.U.K., mnr. T. J. Steyn, Direkteur van Natuurbewaring, en mnr. B. Boshoff, privaatsekretaris van die Administrateur, Panfontein besoek. By hierdie geleentheid is onder andere die uitbreiding van personeel bespreek. As gevolg daarvan het mnr. J. A. J. Hoffman op 14 Augustus 1954 as tydelike klerk, en mnr. J. N. Swart op 1 Julie 1955 as tydelike vakkundige beampte (wildnavorsing) diens aanvaar.

Intussen is 'n permanente pos van tegniese assistent op 5 April 1955 deur mnr. A. G. Hattingh gevul.

GEBOUE

Die oorspronklike woonhuis, kraal en ander buitegeboue was maar in 'n baie swak toestand toe mnr. Cloete die plaas moes oorneem. Die Paaie-afdeling het hom egter van die nodige materiaal voorsien en op

Kantoor en laboratorium. Office and laboratory.

To commence the research on vermin Dr. N. J. v. d. Merwe was appointed assistant professional officer on the 29th June, 1951. After three months at head-office he was transferred to Panfontein as senior research officer.

As Mr. Breed had decided to take up another post after 2½ years' service, Mr. C. A. Buys, Inspector of Fauna and Flora, was temporarily transferred to Panfontein to take charge of the work at the hound depot.

The work at the depot had, however, increased to such an extent in the interim that Mr. P. van Zyl was appointed second and Mr. D. E. Compion third temporary hound masters on the 1st September, 1953.

Mr. Buys was retransferred to his inspector's post at the end of 1953 and on the 1st January, 1954, Mr. W. A. P. Putter took his place as hound master. Two of these posts had in the meantime become permanent as the result of a Public Service Inspection and there is every hope of the third becoming permanent shortly.

On the 5th March, 1954, the Honourable the Administrator, Dr. Wm. Nicol, accompanied by Dr. Theo Wassenaar, M.E.C., Mr. F. H. Odendaal, M.E.C., Mr. T. J. Steyn, Director of Nature Conservation, and Mr. B. Boshoff, Private Secretary to the Administrator, visited Panfontein. On this occasion the question of additional personnel was discussed *inter alia,* as a result of which Mr. J. A. J. Hoffman assumed duty as temporary clerk on the 14th August, 1954, and Mr. J. N. Swart as temporary professional officer (game research) on the 1st July, 1955.

In the meantime a permanent post of technical assistant was filled by Mr. A. G. Hattingh on the 5th April, 1955.

BUILDINGS

The original dwelling-house, kraal and other outhouses were in an exceedingly dilapidated condition when Mr. Cloete took over the farm. The Roads Branch, however, supplied him with the necessary material and on the 26th February, 1945, he reported that the building of the stable, kraal, crush, store-rooms and three watering dams had been completed. He also renovated the dwelling-house and moved in with his family.

After the Executive Committee approved the plan for the establishment of a research institute and a hound depot at Panfontein, the Buildings Branch commenced with the erection of two dwelling-houses early in 1951. On the 1st August, 1951, the hound master, and on the 1st October the research officer, were able to move into their respective dwellings.

On the 1st July, 1952, extensive building operations were commenced at Panfontein. A start was first made with the dog kennels, but within the year four dwelling-houses were also tackled. Early in 1953 the foundations were laid for the 12,000 gallon water-tower.

But for a few minor works the farm foreman moved into his new dwelling on the 30th September, 1953. The water-tower was by now ready for use. The original old dwelling was demolished on the 4th March, 1954, but as much of the material—especially the brickwork—was still in good condition, it was re-used for building kennels and furrows.

Despite the fact that the office and laboratory were still incomplete, the two offices could be occupied as early as the 6th May, 1954. As the old office was a prefabricated rondavel, this was a large stride forward.

The problem of fodder for the farm animals and especially for the eland assumed such proportions that a silo and a spacious barn had to be built. These two buildings together with four dwelling-houses and a petrol and oil room, were handed over on the 20th October, 1954.

26 Februarie 1945 het hy gerapporteer dat die stal, kraal, drukgang, pakkamers en drie suipdamme klaar gebou was. Ook het hy ondertussen die woonhuis opgeknap en met sy gesin ingetrek.

Nadat die Uitvoerende Komitee die plan om 'n navorsingsinrigting en 'n honde-depot op Panfontein te stig, goedgekeur het, het die Geboue-afdeling vroeg in 1951 begin met die oprigting van twee woonhuise. Op 1 Augustus 1951 kon die hondemeester en op 1 Oktober 1951 die navorsingsbeampte sy woning betrek.

Op 1 Julie 1952 het bouery op 'n groot skaal op Panfontein begin. Daar is eers met die hondehokke, maar nog voor die einde van die jaar ook met vier woonhuise begin. Vroeg in 1953 is met die bou van 'n 12,000 gelling-watertoring begin.

Alhoewel daar nog kleinere werkies ongedaan was, kon die plaasvoorman op 30 September 1953 in sy nuwe woning intrek. Die watertoring kon toe ook in gebruik geneem word. Die oorspronklike ou woning is op 4 Maart 1954 gesloop, maar omdat baie van die materiaal, veral die bakstene nog so goed was, is dit weer vir die bou van hokke en slote gebruik.

Tenspyte van die feit dat die kantoor- en laboratoriumgeboue nog nie heeltemal voltooi was nie, kon die twee kantore reeds op 6 Mei 1954 betrek word. Aangesien die ou kantoor 'n opslag-rondawel was, was hierdie 'n groot stap vorentoe.

Die berging van voer vir die plaasdiere en veral ook vir die elande het so 'n probleem geword, dat 'n voerkuil en 'n ruim skuur gebou moes word. Hierdie twee geboue, asook vier woonhuise en 'n petrol- en oliekamer is op 20 Oktober 1954 as voltooi oorhandig.

HONDE-DEPOT

Omdat jakkalshonde as die beste uitroeiingsmiddel van die rooijakkals beskou word en ook omdat die wolboere daarom gevra het, moes die teel en afrigting van hierdie soort honde so gou moontlik aandag geniet.

FOTO/PHOTO: Farmers' Weekly.

Aanbou van hokke vir jakkalshonde, 1952.

Erection of kennels for fox-hounds, 1952.

HOUND DEPOT

Foxhounds are deemed the best means of exterminating the red jackal and because of the request of the wool farmers, the breeding and training of this type of hound had to receive early attention.

Shortly after Mr. Breed assumed duty as temporary hound master, he visited a number of jackal clubs to gain experience and on the 19th April, 1951, he brought the first 18 Foxhounds and 3 Greyhounds to Panfontein. These dogs were a donation from an Ermelo club to the Administration.

A little while later hounds were purchased both in Johannesburg and the Free State, but an important step to the fore was the importation of six valuable hounds from overseas. These hounds were selected and purchased by Mr. P. Wilson in England and arrived at Panfontein on the 21st October, 1952.

When eventually it was possible to move with the hounds to the permanent kennels on the 7th March, 1953, the numbers had increased to 84, more than half of which had been reared at Panfontein.

In an attempt to breed a suitable hound for South African conditions, free use was made of the experience of dog fanciers. On the advice of Mr. P. Wilson an attempt was made to breed Foxhounds having approximately $\frac{1}{4}$ Welsh, $\frac{1}{8}$ Standard Foxhound and $\frac{5}{8}$ Fell blood. The first reared in accordance with this formula are now being trained and it would appear that the result is going to be most satisfactory.

It was only after the appointment of Mr. Compion that the hounds could receive real training, as he was the first hound master with the requisite experience. On the 5th July, 1954, just about $3\frac{1}{4}$ years after the inception of the depot, the sale of the first trained pack of hounds was possible. To date five packs have already been supplied.

A pack of Foxhounds. 'n Span jakkalshonde.

Kort nadat mnr. Breed as tydelike hondemeester diens aanvaar het, het hy 'n aantal jakkalsklubs besoek om ondervinding op te doen en op 19 April 1951 het hy die eerste 18 jakkalshonde en drie windhonde na Panfontein gebring. Hierdie honde was 'n geskenk van 'n Ermelose klub aan die Administrasie.

Kort hierop is ook honde in Johannesburg asook in die Vrystaat aangekoop, maar 'n belangrike stap vorentoe was toe ses waardevolle honde van oorsee ingevoer is. Hierdie honde is deur mnr. P. Wilson in Engeland uitgesoek en aangekoop en hulle het op 21 Oktober 1952 op Panfontein aangekom.

Toe daar eindelik op 7 Maart 1953 met die honde na die permanente hokke getrek kon word, het die getalle reeds tot 84 aangegroei, waarvan meer as die helfte toe reeds hier geteel was.

In 'n poging om 'n geskikte hond vir Suid-Afrikaanse omstandighede te teel is vrylik gebruik gemaak van die ondervinding van hondekenners. Op raad van mnr. P. Wilson is gepoog om jakkalshonde te teel wat omtrent $\frac{1}{4}$ Walliese, $\frac{1}{8}$ Engelse en $\frac{5}{8}$ Fell-bloed het. Die eerstes wat hiervolgens geteel is, word nou afgerig en dit wil voorkom of die resultaat baie geslaagd gaan wees.

Dit was eers na die aanstelling van mnr. Compion dat hierdie honde werklike afrigting kon kry, aangesien hy die eerste hondemeester met die nodige ondervinding was. Op 5 Julie 1954, omtrent net $3\frac{1}{4}$ jaar ná die begin van die depot, kon die eerste afgerigte span honde verkoop word. Tot op datum is reeds vyf spanne gelewer.

Hoewel die hokke by die depot goed beplan en stewig gebou is, is hulle op die oomblik oorbevolk. Die nuwe geboue wat eersdaags begin sal word, sal verligting bring. Dit is belangrik om die teel en afrigting volgens die aanvraag te reël, maar op die oomblik is dit nog onmoontlik om laasgenoemde te bepaal.

WILD

Behalwe die plaasdiere was daar op Panfontein 'n groot trop springbokke, sowel as omtrent 40 blesbokke. Toe daar sprake was dat die plaas verkoop sou word, is besluit om die blesbokke te vang en gratis onder belangstellende boere uit te deel. Gelukkig vir die latere ontwikkeling op die plaas het sewe blesbokke ontkom en hulle het ook dan die kern van die huidige trop geword. Daar is ook besluit om 'n jag op die springbokke te maak, maar dit het ongelukkig op 'n slagting uitgeloop. Mnr. Cloete moes nog weke daarna gekwestes van die gras afmaak.

Met die koms van die eerste twee elande op 10 Junie 1949 en die eerste twaalf swartwildebeeste op 8 Julie 1949 het sake meer na 'n wildplaas begin lyk. Op 22 Junie 1951 is drie paar rooihartbeeste ingevoer as maats vir 'n enkele vers wat toe reeds 'n paar maande op die plaas was. Op 1 Julie 1950 is 13 rooibokke as eksperiment hierheen gebring. Twee het dit nie oorleef nie, maar die res het bo verwagting geteel en hulle aard hier uitermate goed.

Duikers en steenbokkies is in hierdie gebied inheems, maar om een of ander rede was duikers op Panfontein afwesig en steenbokkies baie skaars. Die eerste duiker is op 8 Januarie 1952 deur 'n goedgesinde aan Panfontein geskenk en daarna is enkeles aangekoop. Ook is 'n paar wat deur Inspekteurs van die Afdeling gekonfiskeer is, hierheen gebring.

Although the kennels at the depot have been well planned and substantially built, they are overcrowded at the moment. The new buildings to be commenced shortly will afford a measure of relief.

To arrange the breeding and training according to demand is important, but at the moment it is still impossible to determine the latter.

GAME

Besides the farm animals Panfontein had a large herd of springbuck and approximately 40 blesbuck. When there was talk of selling the farm, it was decided to catch the blesbuck for free distribution to interested farmers. Fortunately for the subsequent development on the farm seven blesbuck escaped and in this way formed the nucleus of the present herd. It was also decided to hunt the springbuck, but this unfortunately resulted in a slaughter. Mr. Cloete spent many weeks afterwards killing off the wounded.

With the arrival of the first two eland on the 10th June, 1949, and the first twelve black wildebeest on the 8th July, 1949, matters began to take on some semblanee of a game reserve. On the 22nd June, 1951, three pair of red hartebeest were introduced as mates for a single heifer which had then been on the farm for a few months only. On the 1st July, 1959, thirteen impala were introduced by way of experiment. Two failed to survive, but the rest bred beyond expectation and are thriving.

The duiker and steenbuck are indigenous to the Western Transvaal, but for some reason or other duikers were non-existent on the farm and steenbok very rare. The first duiker was donated to Panfontein by a benefactor on the 8th January, 1952, while a few were purchased later. Those confiscated by Inspectors of the Branch were also released.

The small steenbuck soon came into their own under the protection vouchsafed to them and their numbers were considerably increased by those released after confiscation.

The springbuck increased to such an extent that it was necessary to take drastic measures to curtail their numbers (approximately 600 in 1953) by capturing and by the shooting of old buck.

The eland thrived remarkably well right from the start and the first calf arrived on the 1st March, 1952. Apart from the fact that they were introduced for the reason that they are indigenous to this area, they were also specifically obtained in order to launch an effort to domesticate them. They are exceedingly tame and forbearing and are tended by a small herd-boy. They are kraaled and fed every evening to be taken to the veld again every morning under the care of their little herdsman.

At present the numbers are as follows:

Eland	12
Blesbuck	58
Duiker	9
Impala	59
Red Hartebeest	16
Springbuck	±300
Steenbuck	±38
Black Wildebeest	49

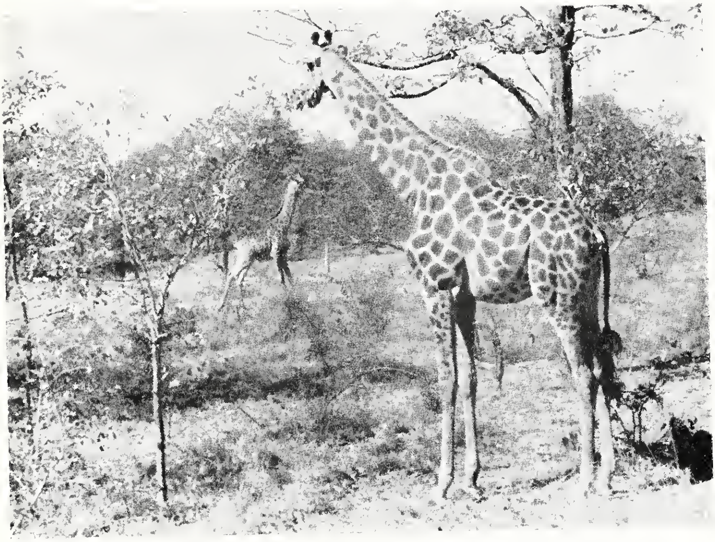
Steenbokkies het onder die beskerming wat hulle geniet het, vinnig tot hul reg gekom en hul getalle is aansienlik vermeerder deur gekonfiskeerdes wat losgelaat is.

Die springbokke het so geweldig vermeerder dat dit nodig was om hul getalle (ongeveer 600 in 1953) drasties te verminder deur vangste en die skiet van afgeleefde bokke.

Die elande het sommer uit die staanspoor hier besonder goed geaard en die eerste kalfie het op 1 Maart 1952 aangekom. Behalwe die feit dat hulle hierheen gebring is omdat hulle in hierdie gebied inheems is, is hulle ook spesifiek verkry om 'n begin te maak met 'n poging om hulle te verhuislik. Hulle is baie mak en verdraagsaam en staan onder die sorg van 'n klein beeswagtertjie. Hulle word elke aand in die kraal gebring en word daar gevoer om dan weer elke môre onder die sorg van hul oppassertjie na die veld geneem te word.

Op die oomblik is die getalle as volg:—

Elande	12
Blesbokke	58
Duikers	9
Rooibokke	59
Rooihartbeeste	16
Springbokke	±300
Steenbokkies	±38
Swartwildebeeste	49



Giraffe (Hans Merensky Nature Reserve).

Kameelperde (Hans Merensky-natuurreservaat).

'N SOOGDIER-OPNAME VAN DIE S. A. LOMBARD-NATUURRESERVAAT (1954)

deur J. Meester

Transvaalse Museum, Pretoria.

HIERONDER volg 'n verslag oor 'n opname van die soogdierfauna van die S.A. Lombard-natuurreservaat naby Bloemhof, Wes-Transvaal. Hierdie opname is onderneem op versoek van die Afdeling Natuurbewaring van die Transvaalse Provinsiale Administrasie, met vriendelike toestemming van die Direkteur van die Transvaalse Museum.

Die S.A. Lombard-natuurreservaat beslaan ongeveer 4,417 morge en bestaan uit plat, eentonige grasveld met min bome, met uitsondering van 'n paar geïsoleerde groepe bome en struike, hoofsaaklik doringbome, wat gewoonlik gevind word waar die grond as gevolg van diamantdelwery bedek is met gruishope.

'n Deel van die reservaat (Fig. 1, afd. A) word gebruik vir landboudoeleindes. Die gewone oes is mielies, boontjies en grondbone, vir plaaslike gebruik. Afdeling B dien as depot vir die teelt en afrigting van jakkalshonde. Die groot aantal wildsbokke wat in die reservaat aangetref word, word gewoonlik gevind in afd. C, wat gevolglik met sekere tye van die jaar aansienlik oorbewei is. Die woongebied (D) is omtrent 'n myl vanaf die suid-oostelike grens geleë en bestaan uit 'n aantal huise vir die personeel, 'n laboratorium, bergkamers, krale en werkswinkels.

Die reservaat is viermaal besoek. Die eerste besoek, gedurende Mei 1953, vir slegs een dag, was slegs 'n inspeksiereis en geen versamelwerk is gedoen nie. Die tweede, gedurende Augustus van dieselfde jaar, het drie weke geduur; die derde, gedurende Januarie 1954, een week en die laaste, gedurende Junie 1954, vyf dae. Tydens my tweede en derde besoeke was ek vergesel deur die Museum se Naturellevoorbereider, Samson Maseko. Verder het dr. B. G. Lundholm, vroeër van die Afdeling Soogdierkunde, en mnr. A. G. White, Diere-opstopper van die Transvaalse Museum, reeds voorheen 'n paar dae in die reservaat deurgebring en hoofsaaklik springhase versamel.

Gedurende al die versamelreise was die beleid om slegs die kleiner soogdiere te versamel. Die groter species, vanaf 'n duiker opwaarts, is slegs in die veld waargeneem en geen poging is aangewend om eksemplare te versamel nie. Versamelwerk is gedoen met behulp van valle en 'n klein haelgeweer. Die valle wat gebruik is, is hoofsaaklik staal-muisvalle, met 'n paar molvalle en 'n aantal tuisgemaakte valle om diere lewendig mee te versamel.

Sistematiese versamelwerk was tot afdelings A, C, D en E beperk, hoewel ek gedurende my derde besoek 'n paar valle in afd. F gestel het. Hier is 'n aantal streepmuise (*Rhabbdomys pumilio*) en 'n paar Namakwalandse nagmuise (*Desmodillus auricularis*) versamel.

In daardie afdelings wat deur die opname gedek is, is valle gestel in 'n aantal verteenwoordigende lokaliteite, met die oog daarop om vas te stel watter klein soogdiervorme voorkom en wat hul verspreiding is. Waar

A MAMMAL SURVEY OF THE S. A. LOMBARD NATURE RESERVE (1954)

by J. Meester

Transvaal Museum, Pretoria

THE following is an account of a survey of the mammal fauna of the S.A. Lombard Nature Reserve, near Bloemhof, Western Transvaal. This survey was undertaken at the request of the Nature Conservation Section of the Transvaal Provincial Administration, and by kind permission of the Director of the Transvaal Museum.

The S.A. Lombard Nature Reserve, comprising some 4,417 morgen, is situated in flat, featureless grassveld, with very few trees, except for a few isolated clumps of bush, predominantly thorn, usually found where the ground has been prospected for diamonds and is consequently covered with numerous gravel dumps.

Part of the reserve (Fig. 1, Section A) is devoted to agricultural purposes. The usual crops are corn (mealies), beans and ground-nuts, all produced for local use. Section B serves as a depot for the breeding and training of Fox-hounds. The considerable number of antelopes kept in the reserve are usually found in Section C, which is consequently at some times of the year rather overgrazed. The residential area (D) is located about a mile from the south-eastern boundary and consists of a number of houses for the staff, a laboratory, storage sheds, kraals and workshops.

Four visits were paid to the reserve. The first, during May, 1953, for one day only, was purely a tour of inspection, and no collecting was done. The second visit, during August of the same year, lasted three weeks, the third during January, 1954, one week and the last, during June, 1954, five days. During my second and third visits I was accompanied by the Museum's Native skinner, Samson Maseko. Previously furthermore, Dr. B. G. Lundholm, late of the Division of Mammalogy, and Mr. A. G. White, Taxidermist at the Museum, had spent a few days in the reserve, collecting mainly springhares.

During all the collecting trips the policy was to confine collecting to the smaller mammals. The larger species, from the size of a duiker upwards, were merely observed in the field and no attempt was made to procure specimens. Collecting was done by trapping and shooting with a small-bore shotgun. The traps used were mainly steel break-backs, with a few mole traps and some home-made live traps.

Systematic collecting was confined to Sections A, C, D and E, although during my third visit a few traps were set at random in Section F, where a number of striped mice (*Rhabdomys pumilio*) and a few Namaqua gerbilles (*Desmodillus auricularis*) were procured.

In those sections surveyed traps were set at a number of representative localities, in an effort to determine what small mammal forms occur and what their distribution was. Where possible traps were set at holes and runways; otherwise they were set in traplines, with at least twenty traps to each locality, set in three lines of 7 : 6 : 7 = 20 or, in the case of the

dit moontlik was, is valle gestel op paadjies of voor gate; so nie is hulle in rye gestel, met ten minste twintig valle by elke lokaliteit. Valle is gestel in drie rye van 7:6:7=20, of in die geval van die valle vir lewendige vangs, in ses rye, elk bevattende ses valle. Elke ry was tien treë van die volgende

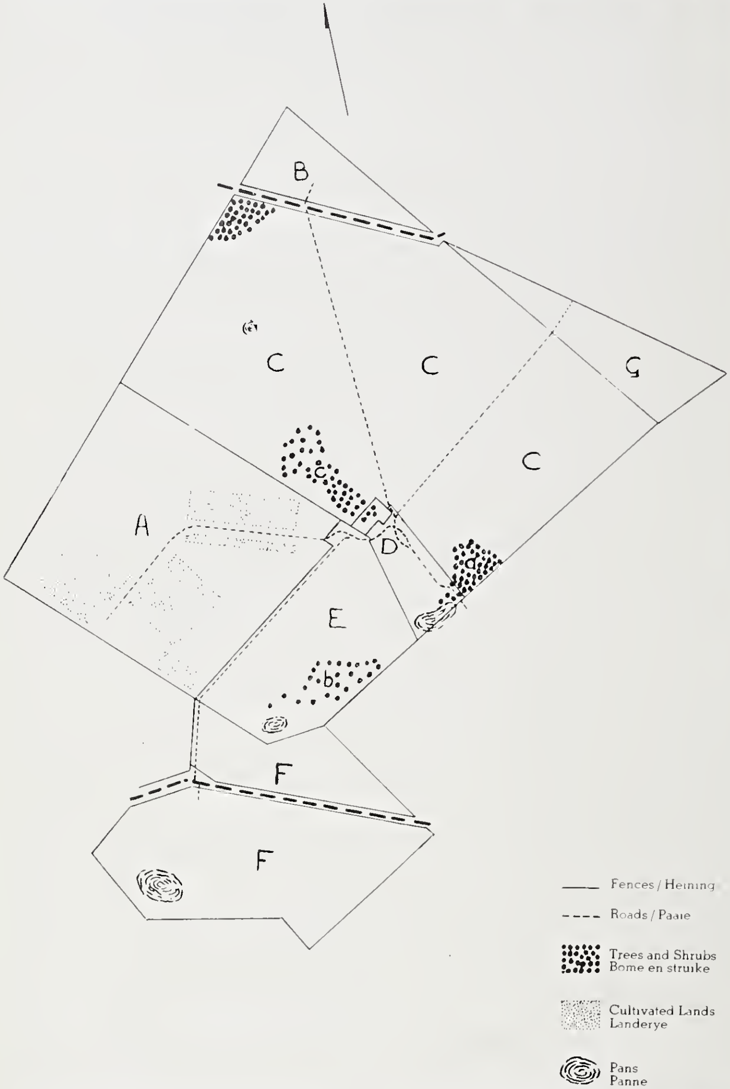


FIG. 1.—Kaart van die S.A. Lombard-natuurreservaat, met die verskillende afdelings gemerk A-G. Verklarings in die teks.

FIG. 1.—Map of the S.A. Lombard Nature Reserve, with the different sections marked A-G. Explanations in the text.

live traps, in six lines of six traps each. Each line was separated from the next by a distance of ten yards and the traps themselves were also set ten yards apart. During the second visit 240 traps were combined in one trapline, set as follows: thirty traps per line in eight lines, ten yards apart, the traps themselves separated from each other by a distance of ten yards, to cover an area of 300 by 80 yards.

All specimens collected were examined for ectoparasites. Part of the viscera were removed to be examined for endoparasites. Both ectoparasites and viscera were sent to Onderstepoort Laboratory for examination and identification. Embryos were collected for the Museum. Finally, record sheets were filled in for all specimens collected and in these, besides field measurements, further particulars such as habitat, sex, time collected and general condition were noted.

In all 107 specimens were collected, and are at present stored in the collections of the Transvaal Museum.

No bats or insectivores are represented in the material collected, although the former occurred at one time in the loft of an old house, now destroyed, and hedgehogs (*Erinaceus frontalis*) were reported by various people in the reserve.

The black-backed jackal (*Thos mesomelas*) and the silver jackal (*Vulpes chama*) occur in this area, but were not collected by me. A maanhaar jackal (*Proteles cristatus*) was procured during my second visit, after this animal had been hunted down by dogs, trapped in a hole and killed.

Suricates (*Suricata suricatta*) were not collected. They seem by no means common in the reserve. One individual was seen in a ground squirrel (*Geosciurus inauris*) warren. With regard to this point Roberts (" The Mammals of South Africa ", 1951) remarks of the suricate: " It lives in warrens, often in association with the yellow mungoose (*Cynictis*)

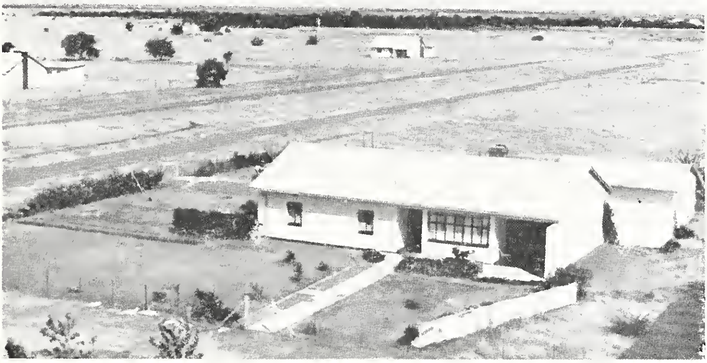


FIG. 2.—A view of the reserve looking south-east from the residential area.

FIG. 2.—'n Uitsig oor die reservaat, suidooswaarts vanaf die woongebied.

af, en die valle self was ook tien treë vanmekaar af gestel. Gedurende my tweede besoek is 240 valle as volg gekombineer in een groep: dertig valle per ry, in agt rye, tien treë van mekaar, met die valle van mekaar verwyder vir 'n afstand van tien treë. 'n Oppervlak van 300 × 80 treë was hierdeur gedek.

Alle eksemplare wat versamel is, is ondersoek om vas te stel of daar uitwendige parasiete op hulle aanwesig was. Dele van die ingewande is verwyder om vir inwendige parasiete ondersoek te word. Beide uitwendige parasiete en ingewandes is vir ondersoek en identifikasie na Onderstepoort gestuur. Embrios is versamel vir die Museum, en rekords van alle versamelde eksemplare is gehou. Op hierdie rekords word veldafmetings en verdere gegewens soos habitat, geslag, tyd van versameling en algemene toestand aangedui.

Altesaam 107 eksemplare is versamel en word tans gehuisves in die versamelings van die Transvaalse Museum.

Geen vlermuise of insektivore is versamel nie, hoewel eersgenoemde voorgekom het in die solder van 'n ou huis wat intussen afgebreek is, en die aanwesigheid van krimpvarkies deur verskeie persone in die reservaat gerapporteer is.

Die rooijakkals (*Thos mesomelas*) en die silwerjakkals (*Vulpes chama*) kom voor in hierdie gebied, maar is nie deur my versamel nie. 'n Maanhaarjakkals (*Proteles cristatus*) is gedurende my tweede besoek versamel, toe hierdie dier deur honde in 'n gat gejaag en daar vernietig is.

Stokstertmeerkatte (*Suricata suricatta*) is nie versamel nie. Hierdie diertjies skyn nie te volop te wees in die reservaat nie. Een eksemplaar is gesien in 'n waaierstertmeerkat-kolonie (*Geosciurus inauris*). In hierdie verband maak Roberts („The Mammals of South Africa", 1951) die volgende opmerking oor die stokstertmeerkat: „It lives in warrens often in association with the yellow mungoose (*Cynictis*) and Ground Squirrel (*Geosciurus*), in addition to other smaller animals such as mice and Gerbilles". My waarnemings bevestig hierdie opmerking. Inderdaad is rooimeerkatte, groot nagmuise (*Tatera schinzi*) en 'n enkele eksemplaar van die wangsakmuis (*Saccostomus campestris*) almal in of naby waaierstertmeerkat-kolonies versamel. Dit skyn ook moontlik dat die springhaas (*Pedetes cafer*) 'n deel mag vorm van hierdie assosiasie, aangesien springhase wat in die nag opgejaag is, somtyds in hierdie kolonies weggekruip het nadat hulle 'n sekere afstand gevlug het.

Die rooimeerkat (*Cynictis penicillata*) is taamlik volop. Dit is dikwels saam met waaierstertmeerkatte gesien, en op een geleentheid het 'n waaierstertmeerkat en 'n rooimeerkat in dieselfde gat ingevlug. Rooimeerkatte is egter 'n paar keer taamlik vêr van waaierstertmeerkat-kolonies gevang. Dit dui daarop dat hulle, veral in hul soektog na voedsel, glad nie beperk is tot hierdie kolonies nie.

Waaierstertmeerkatte was baie volop tydens my tweede besoek maar later was hulle, hoewel bepaald nie skaars nie, minder volop as voorheen. Hul kolonies, wat normaalweg uit omtrent twee tot sewe gate bestaan, is wyd versprei oor die reservaat en is gewoonlik, hoewel nie altyd nie, in die oop veld. Dit skyn asof 'n enkele familie meer as een kolonie mag bewoon, aangesien dit dikwels gesien is dat indiwidue van een kolonie af omtrent vyftig treë hardloop tot by die volgende, waar hulle dan in een van die gate induik. Roberts (1951) gee 'n uitstekende beskrywing van hul gedrag wanneer hulle verstoor word: „. . . they make for their burrows, crouching as close to the ground as possible to avoid being seen; but having reached their burrows very often turn round at the entrance and watch the intruder before diving to safety".

and Ground Squirrel (*Geosciurus*), in addition to other smaller animals such as Mice and Gerbilles." My observations confirm this. In fact yellow pouched mouse (*Saccostomus campestris*) were procured in or near ground mungoose, Schinz's gerbille (*Tatera schinzi*) and a single specimen of squirrel warrens.

It seems possible that also the springhare (*Pedetes cafer*) may form part of this association, as springhares chased up at night, after running away for some distance, would on occasion conceal themselves in these warrens.

The yellow mungoose (*Cynictis penicillata*) is fairly plentiful. It was frequently seen with ground squirrels and on one occasion, on being disturbed a ground squirrel and a yellow mungoose dived into the same hole. However, on one or two occasions yellow mungoose were trapped quite far away from ground squirrel warrens, thereby indicating that they are by no means restricted to these, particularly in their search for food.

Ground squirrels were very plentiful during my second visit, but subsequently, although by no means scarce, they were distinctly less conspicuous. Their warrens, consisting of normally about two to seven holes, are widely distributed over the reserve, usually, but not always, in the open veld. It seems that a single family may inhabit more than one warren, as individuals were frequently seen to dash from one warren to the next, about fifty yards away, where they would dive into the holes. Roberts (1951) gives an excellent account of their behaviour when disturbed: ". . . . they make for their burrows, crouching as close to the ground as possible to avoid being seen; but having reached their burrows very often turn round at the entrance and watch the intruder before diving to safety ".

Schinz's gerbille is the dominant small rodent in the reserve, and was collected in large numbers, always at night. Specimens were very seldom procured away from burrows which occur in soft, sandy soil in a variety of different habitats, including open veld, bush and shrub clumps and ground squirrel colonies. Holes occur either singly or in groups of usually three or four together, spread over an area of approximately ten square yards, and are most often found under shrub clumps. In this the present species differs from Brant's gerbille (*Tatera brantsi*) which more often has its burrows in the open veld. Holes are usually more or less circular, about two inches across, with small mounds of earth at their openings. When the burrows are occupied there is usually fresh earth on the mound every morning. Sometimes, when this gerbille occurs in ground squirrel colonies, old squirrel holes are utilized, and one or two specimens were caught at the entrances to these.

During my second visit a number of specimens of Schinz's gerbille were collected and one particularly favourable locality was a clump of bush (Fig. 1, a) on the south-eastern boundary. On subsequent visits no specimens of this or any other small rodent were procured here, while in the residential area (Fig. 1, D), where it had previously predominated, its place had apparently been taken by the Namaqua gerbille. Only in the bush patches further south (Fig. 1, b) did it appear to be as abundant as previously. No doubt this gerbille remains the most common small rodent in the reserve, but its disappearance from several much-frequented localities suggests that it is—for the moment at least—experiencing a decline in numbers.

Die groot nagmuis is die dominante klein knaagdier in die reservaat. en is in groot getalle versamel, altyd in die nag. Eksemplare is gewoonlik versamel by gate in sagte, sanderige grond. Hierdie gate kom voor in 'n verskeidenheid van habitats, insluitende oop veld, groepe bome en struike en kolonies van waaierstertmeerkatte. Gate is òf enkel òf in groepe van gewoonlik drie of vier saam, is versprei oor 'n oppervlak van omtrent tien vierkante treë, en word meesal gevind onder groepe struike. Hierin verskil die groot nagmuis van die Basoetoelandse nagmuis, wat gewoonlik sy gate in die oop veld maak. Gate is gewoonlik min of meer rond, omtrent twee duim in deursnee, met klein hopies grond voor die openings. Wanneer die gate bewoon word, is daar gewoonlik elke oggend vars grond op die hopies. Somtyds, wanneer hierdie nagmuis in kolonies van waaierstertmeerkatte voorkom, word ou waaierstert-gate gebruik, en 'n paar eksemplare is by die openinge van sulke gate gevang.

Tydens my tweede besoek is 'n aantal eksemplare van die groot nagmuis versamel, en een besonder gunstige lokaliteit was die groep bome en struike (Fig. 1, a) langs die suid-oostelike grens. Tydens latere besoeke is geen eksemplare van hierdie of enige ander klein knaagdier hier gevind nie, terwyl die Namakwalandse nagmuis blykbaar sy plek ingeneem het in die woongebied (Fig. 1, D) waar hy eers oorheers het. Slegs in die groepe bome en struike verder suidwaarts (Fig. 1, b) het hy so volop as vroeër geblyk te wees. Sonder twyfel bly hierdie nagmuis steeds die mees algemene klein knaagdier in die reservaat, maar sy verdwyning in sekere veelbewoonde gebiede dui daarop dat hy tans besig is om te verminder in getalle.

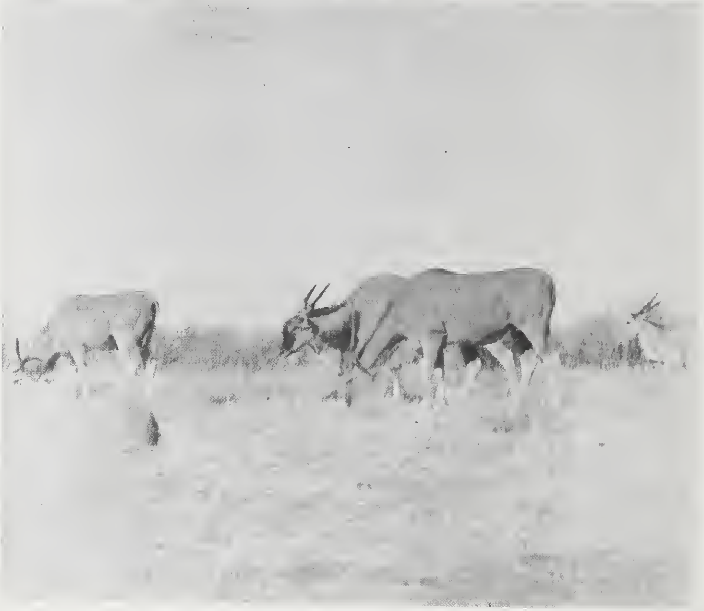


FIG. 3.—Elande (*Taurotragus oryx*) in die reservaat.

FIG. 3.—Eland (*Taurotragus oryx*) in the reserve.

The Namaqua gerbille (*Desmodillus auricularis*) is fairly plentiful. The holes of this form are rather similar to those of Schinz's gerbille, but are often, although not always, distinguished by heaps of thorns ("dubbeltjies") mixed with the mounds of earth lying outside their entrances. These thorns, besides protecting it from intruders, also form part of its diet, according to Roberts (1951). The Namaqua gerbille seems less shy than Schinz's gerbille, and occurs more often close to human habitation than does the latter form.

During August, 1953, it was confined to a narrow strip of practically bare ground covered only with short, sparse grass, immediately inside the eastern boundary of the residential area, and practically surrounded by human habitation. In January, 1954, it was found to have extended westwards over the residential area, while in June, 1954, a single specimen was collected in the cultivated lands (Fig. 1, A) approximately two miles away from the spot where it had been originally found. The Namaqua gerbille therefore seems to be strongly increasing and considerably extending its range, possibly at the expense of Schinz's gerbille, which may account for the apparent decrease in abundance of the latter.

Mounds of mole-rats (*Cryptomys sp.*) were extensively distributed over the reserve in August, 1953, when three specimens were collected, and June, 1954, but during January, 1954 few mounds were seen.

Only one specimen of the pouched mouse (*Saccostomus campestris*) was procured, in August, 1953, in a hole next to a ground squirrel colony near the small pan in Section E (see Fig. 1). Subsequently (January, 1954),

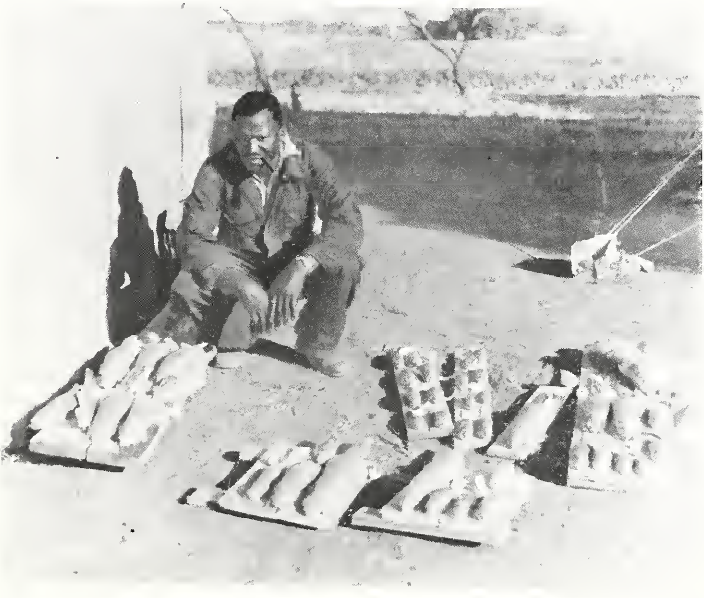


FIG. 4.—The Native skinner Samson, with some of the specimens collected.

FIG. 4.—Die Naturelle-voorbereider Samson met sommige van die eksemplare wat versamel is.

Die Namakwalandse nagmuis (*Desmodillus auricularis*) is taamlik volop. Die gate van hierdie vorm is soortgelyk aan dié van die groot nagmuis maar word dikwels, hoewel nie altyd nie, onderskei daardeur dat daar dubbeltjies gemeng is met die sandhope voor hul ingange. Hierdie dubbeltjies beskerm die dier teen indringers, terwyl dit volgens Roberts (1951) ook deel van sy voedsel vorm. Die Namakwalandse nagmuis skyn minder skugter as die groot nagmuis te wees en kom meer dikwels as laasgenoemde naby huise voor.

Gedurende Augustus 1953 was hy beperk tot 'n smal strokie grond, bedek slegs deur kort, yl, gras, net binne die oostelike grens van die woongebied, en bykans omring deur huise. In Januarie is dit bevind dat hy sy gebied weswaarts uitgebrei het oor die hele woongebied, terwyl 'n enkele eksemplaar in Junie 1954 in die landerye (Fig. 1, A) omtrent twee myl van waar hy oorspronklik gevind is, versamel is. Dit skyn dus asof die Namakwalandse nagmuis besig is om sy gebied sterk uit te brei, moontlik ten koste van die groot nagmuis. Dit sou verklaar waarom laasgenoemde skynbaar tans besig is om te verminder in getalle.

Molshope (*Cryptomys sp.*) was wyd verspreid oor die reservaat gedurende Augustus 1953, toe drie eksemplare versamel is, en Junie 1954, maar gedurende Januarie 1954 was hulle skaars. Gedurende Augustus 1953 is slegs een eksemplaar van die wangsakmuis (*Saccostomus campestris*) versamel in 'n gat langsaan 'n waaierstertmeerkat-kolonie, naby die klein pan in afd. E. (Sien Fig. 1.) Later (Januarie 1954) is 'n eksemplaar van die groot nagmuis digby, in die kolonie, gevang. Dit steun die veronderstelling dat hierdie twee genera deel mag vorm van die assosiasie van klein soogdiere wat 'n waaierstertmeerkat-kolonie bewoon.

Vaal veldmuise (*Mastomys natalensis*) is gevind slegs in daardie gebiede waar die mens se invloed gevoel word, byvoorbeeld vuilgoedhope, groentetuine (in die woongebied) en landerye. Verder is al die eksemplare, met een uitsondering, gevang buite die ingange tot tonnels, soortgelyke aan dié van die groot nagmuis. Die enkele uitsondering is in 'n bykans onsigbare tonnel in digte gras verkry. Waar vaal veldmuise egter op ander plekke versamel is, is hulle dikwels (en somtyds uitsluitlik) op paadjies gevind. Dit skyn asof hierdie muis baie aanpasbaar is en kan lewe waar daar ookal 'n geskikte voedselvoorraad in die nabyheid is. Hy is 'n nagdier.

Streepmuise (*Rhabdomys pumilio*) is sonder uitsondering bedags gevang in duidelike paadjies in digte plantegroei of hope dooie gras.

Die huisrot (*Rattus rattus*) kom voor in die skure en bergkamers in die woongebied, waar verskeie reeds doodgemaak is.

Aangesien springhase (*Pedetes cafer*) reeds voorheen in die reservaat versamel was, is geen verdere eksemplare verkry nie. As hierdie diere snags gejaag word, soek hulle somtyds skuiling in kolonies van waaierstertmeerkatte. Hierdie feit dui daarop dat hulle ook deel mag vorm van die assosiasies wat hierdie kolonies bewoon. Springhaas-gate is egter ook gevind, sodat mens kan aanneem dat hulle nie eksklusief tot hierdie assosiasies behoort nie. Springhase is volop in die reservaat, veral in die landerye (Fig. 1, A), waar tekens van hul aktiwiteite—klein gaatjies in die los grond—baie volop is, en waar hulle aansienlike skade aan die gesaaides aanrig.

Ystervarkgate (*Hystrix africae-australis*) is op verskillende plekke in die reservaat gesien, 'n paar penne is naby sommige opgetel, maar geen eksemplare is waargeneem nie en geen poging is aangewend om ystervarke te versamel nie.

Die vlakhaas (*Lepus capensis*) is wyd verspreid oor die reservaat.

a specimen of Schinz's gerbille was caught close by in the adjoining colony. This lends support to the assumption that these two genera may form part of the association of small mammals inhabiting ground squirrel colonies.

Multi-mammate mice (*Mastomys natalensis*) were found only in areas where human influence is felt, such as refuse heaps, vegetable gardens (in the residential area) and cultivated lands. Furthermore, with one exception, all the specimens were collected at the entrances to burrows, similar to those of Schinz's gerbille. The single exception was caught in a tunnel in dense grass, practically invisible from above. However, in collecting multi-mammate mice in other areas it has been found to occur often (and sometimes exclusively) in runways. On the whole this mouse seems very adaptable, living wherever a suitable food supply is conveniently close. It is nocturnal in its habits.

Striped mice (*Rhabdomys pumilio*) were invariably caught in daytime in well-marked runways in dense vegetation or piles of dead grass.

The house rat (*Rattus rattus*) occurs in the sheds and storerooms in the residential area, where several have been killed.

As springhare (*Pedetes cafer*) had been previously collected in the reserve no further specimens were procured. These animals, on being chased at night, would sometimes take shelter in ground squirrel warrens, thereby indicating that they, too, may form part of the associations that inhabit these. Springhare burrows were also found, however, which shows that they do not belong exclusively to these associations. Springhares are abundant in the reserve, particularly in the cultivated lands (Fig. 1, A) where signs of their aetivities—small holes dug in the loose earth—are most plentiful, and where they do considerable damage to crops.

Porcupine (*Hystrix africae-australis*) holes were seen on various parts of the reserve and a few quills were picked up near some of them, but no specimens were seen, and no attempt was made to collect them.

The cape hare (*Lepus capensis*) has a wide distribution over the reserve. Roberts (1951) remarks that it is found only in open grassland and only occurs " occasionally in scrub when harried in the flats ". This was not the case here. On the whole, while this species was more abundant in open grassland, it was by no means restricted to this biotope and several specimens were procured in the bush area marked " a " in Fig. 1, where scrub hare (*Lepus saxatilis*) were often seen and one specimen was in fact shot. The latter form was also seen in the bush area amongst the gravel dumps about half a mile north of the residential area (Fig. 1, c), where again it co-exists with the cape hare. Altogether, the scrub hare has a more restricted range than the other, being more or less confined to open bush and scrub.

Antbear (*Orycteropus afer*) were not seen, but several holes were found in the reserve, and the animal has been reported by various members of the staff. There are a number of antheaps in the reserve and many of these have been burrowed into, presumably by antbear.

A number of species of antelopes live in the reserve. Of these only the blesbuck and springbuck were originally present. The rest were subsequently imported. The numbers of antelopes given in this text were furnished by Dr. N. J. v. d. Merwe, Senior Research Officer of the reserve.

Duiker (*Sylvicapra grimmia*) of which there are four in the reserve, were occasionally seen in the open grassveld where they hide under isolated shrub clumps or in thick grass. One very tame duiker often frequented the residential area, where it would go from place to place begging for titbits.

Roberts (1951) merk op dat hierdie haas slegs in oop grasveld gevind word en „ occasionally (occurs) in scrub when harried in the flats ”. Dit was nie die geval hier nie. Terwyl hierdie species oor die algemeen meer volop in oop grasveld is, was dit geensins beperk tot hierdie biotoop nie, en verskeie eksemplare is verkry in die gebied gemerk „ a ” in Fig. 1, waar baie bome en struike voorkom en waar die kolhaas (*Lepus saxatilis*) dikwels gesien is. Een eksemplaar van lg. is inderdaad hier geskiet. Die kolhaas is ook tussen die bome en struike op die gruishope omtrent 'n halfmyl noord van die woongebied gesien (Fig. 1, c) waar dit weer saam met die vlakhaas voorkom. Die kolhaas het 'n meer beperkte gebied as die vlakhaas, en kom hoofsaaklik net tussen oop bosse en struike voor.

Erdvarke (*Orycteropus afer*) is nie waargeneem nie, maar verskeie erdvarkgate is in die reservaat gevind en die aanwesigheid van die dier is deur verskeie lede van die personeel gerapporteer. Daar is 'n aantal mierhope in die reservaat en verskeie van hierdie is oopgebreek, moontlik deur erdvarke.

'n Aantal wildsbok-species kom in die reservaat voor. Die blesbokke en springbokke is die enigste van hierdie wat oorspronklik hier voorgekom het, die res is later ingevoer. Die getalle hier verstrek is verskaf deur dr. N. J. v. d. Merwe, Senior Navorsingsbeampte van die reservaat.

Duikers (*Sylvicapra grimmia*), waarvan daar vier in die reservaat voorkom, is nou en dan in die oop grasveld gesien, waar hulle skuil onder geïsoleerde struike of digte gras. Een baie mak duiker het die woongebied dikwels besoek en van plek na plek geloop om snoeperye te bedel. Steenbokke (*Raphicerus campestris*) is ook soms waargeneem, veral in die bosse en gruishope noord van die woongebied (Fig. 1, c), waar hulle agtervolgers ontduik deur tussen die hope weg te koets. Daar is omtrent 30 van hierdie bokke.

Springbokke (*Antidorcas marsupialis*) vorm die oorgrote deel van die wildsbok-bevolking in die reservaat, waar daar omtrent 300 is. Met tye was daar al tot 600, maar sulke hoë getalle in verhouding met die ander soorte is ongewens met die oog op die beskikbare weiding, en die bevolking is met 310 verminder.

Drie-en-veertig impala (*Aepyceros melampus*) kom voor in die reservaat. Nogal interessant is die feit dat dit 'n paar keer waargeneem is dat hulle saam met die springbokke wei. Dit is nie gewoonlik die geval nie, en is waarskynlik toe te skryf aan die onnatuurlike omstandighede waaronder hulle in die reservaat verkeer.

Blesbokke (*Damaliscus albifrons*) is dikwels waargeneem asook rooihartbeeste (*Alcelaphus caama*). Daar is 44 van eersgenoemde soort en 16 van laasgenoemde. Swartwildebeeste (*Connochaetes gnou*) is 44 in getal. Laasgenoemde skyn taamlik sku te wees en meng nie met die ander wildsoorte nie.

'n Klein trop van elf mak elande (*Taurotragus oryx*) word in die reservaat aangehou. Gedurende die dag wei die elande naby die woongebied, waar hulle hul min steur aan die nabyheid van mense. In die aand kom hulle kraal-toe, waar hulle die nag deurbring. Een gekastreerde bul is 'n besonder gedetermineerde bedelaar. Hierdie dier wei nie saam met die trop nie, en het blykbaar nie veel omgang met die ander elande nie.

In Augustus 1953 was daar 'n enkele gemsbokbul (*Oryx gazella*) in die reservaat. Hierdie dier het 'n taamlike eensame lewe gelei en het nie veel met die ander wildsbokke te doen gehad nie. Tydens my derde besoek het ek verstaan dat hy intussen dood is.

Steenbuck (*Raphicerus campestris*) were also occasionally seen, particularly in the gravel dumps and bush north of the residential area (Fig. 1, c), where they elude pursuit by dodging amongst the dumps. These buck number approximately 30 specimens.

Springbuck (*Antidorcas marsupialis*) constitute the bulk of the antelope population of the reserve, numbering approximately 300 head. At times the totals have reached about 600, but such high numbers in relation to the other species are undesirable from the point of view of the available grazing, and the population was reduced by 310.

Impala (*Aepyceros melampus*) number 43 specimens. It is interesting to note that on a few occasions they were seen to graze together with the springbuck. This does not generally happen and is probably due to the artificial conditions under which they exist in the reserve.

Blesbuck (*Damaliscus albifrons*) were often seen as well as red hartebeest (*Alcelaphus caama*). The former numbered 44 specimens and the latter 16. Black wildebeest (*Connochaetes gnou*) numbered 44 specimens. The latter seem rather taciturn and usually remain isolated from the rest of the big game.

A small herd of eleven eland (*Taurotragus oryx*) is kept on the reserve in a semi-domesticated state. During the day the eland graze near the residential area where they are not in the least disturbed by the close proximity of human beings. In the evening they return to the kraal, where they spend the night. One castrated male is a persistent beggar. This animal usually grazes some distance away from the herd and does not seem to associate with the other eland

In August, 1953, there was a solitary male gemsbuck (*Oryx gazella*) in the reserve. This individual led a rather lonesome life, not associating to any considerable extent with the other antelope. On my third visit I learnt that it had died.

It was interesting to note the movements of the different types of antelope in the reserve. Each herd seemed to frequent definite areas during different times of the day, and apparently also during the different seasons. It would have been interesting to have studied these movements in detail, but as it was not possible to spend more than a few weeks at a time in the reserve, at widely separated intervals, this was impossible.

To sum up, the following mammals were found to occur in the S.A. Lombard Nature Reserve:

Chiroptera—bats (not identified).
Erinaceus frontalis—hedgehog.
Thos mesomelas—black-backed jackal.
Vulpes chama—silver jackal.
Proteles cristatus—maanhaar jackal.
Suricata suricatta—suricate.
Cynictis penicillata—yellow mungoose.
Geosciurus inauris—ground squirrel.
Tatera schinzi—Schinz's gerbille.
Desmodillus auricularis—Namaqua gerbille.
Cryptomys sp.—mole-rat.
Mastomys natalensis—multi-mammate mouse.
Rhabdomys pumilio—striped mouse.
Rattus rattus—house rat.
Pedetes cafer—springhare.
Hystrix africae-australis—porcupine.
Lepus capensis—cape hare.

Die bewegings van die verskillende wildsboksoorte in die reservaat is nogal interessant. Elke trop besoek blykbaar sekere bepaalde gebiede gedurende sekere tye van die dag, en skynbaar ook gedurende die verskillende seisoene. Dit sou interessant wees om hierdie bewegings in meer besonderhede na te kan gaan. Aangesien dit nie moontlik was om meer as 'n paar weke op 'n keer in die reservaat deur te bring of die reservaat dikwels genoeg te besoek nie, kon hierdie taak nie aangepak word nie.

Ter opsomming kan gemeld word dat die volgende soogdiere in die S.A. Lombard-natuurreservaat gevind word:—

Chiroptera—vlermuise (nie geïdentifiseer nie).
Erinaceus frontalis—krimpvarkie.
Thos mesomelas—rooijakkals.
Vulpes chama—silwerjakkals.
Proteles cristatus—maanhaarjakkals.
Suricata suricatta—stokstertmeerkat.
Cynictus penicillata—rooimeerkat.
Geosciurus inauris—waaierstertmeerkat.
Tatera schinzi—groot nagmuis.
Desmodillus auricularis—Namakwalandse nagmuis.
Cryptomys sp.—grysmol.
Mastomys natalensis—vaal veldmuis.
Rhabdomys pumilio—streepmuis.
Rattus rattus—huisrot.
Pedetes cafer—springhaas.
Hystrix africae-australis—ystervark.
Lepus capensis—vlakhaas.
Lepus saxatilis—kolhaas.
Orycteropus afer—erdvark.
Sylvicapra grimmia—duiker.
Raphicerus campestris—steenbok.
Antidorcas marsupialis—springbok.
Aepyceros melampus—impala.
Damaliscus albifrons—blesbok.
Alcelaphus caama—rooihartbees.
Connochaetes gnou—swartwildebees.
Taurotragus oryx—eland.
Oryx gazella—gemsbok.

Die skrywer spreek graag sy dank uit teenoor die volgende persone:—

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Lepus saxatilis—scrub hare.
Orycteropus afer—antbear.
Sylvicapra grimmia—duiker.
Raphicerus campestris—steenbuck.
Antidorcas marsupialis—springbuck.
Aepyceros melampus—impala.
Damaliscus albifrons—blesbuck.
Alcelaphus caama—red hartebeest.
Connochaetes gnou—black wildebeest.
Taurotragus oryx—eland.
Oryx gazella—gemsbuck.

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Drinking pool for game (Hans Merensky Nature Reserve).

Suipdam vir wild (Hans Merensky-natuurreservaat).

LOSKOPDAM-NATUURRESERVAAT EN OPENBARE OORD

deur S. S. du Plessis

DIE NATUURRESERVAAT

COTTONFIELDS was 'n klein plaasposkantoortjie langs die Olifantsrivier in die hartjie van die berge 40 myl Noord van Middelburg. Transvaal. Dit was die dae toe die gevreesde Malariamuskiet die laeveld oorheers het: die vrugbare wêreld verder Noord was maar yl bewoon deur blankes en die gewone witman het maar net in die winter daar gekom op soek na 'n stukkie koedoe- of rooibokbiltong.

Vandag staan Cottonfields se bloekombome halflyf in die water van die Loskopdam en verder noord lê duisende morge vrugbare landerye onder besproeiing. Die mooi wal wat hierdie dam vorm is in 1934 begin en voltooi in 1938 teen 'n koste van £750.000. Dit is 1,420 voet lank en 186 voet hoog. Die dam hou 70,000 morgvoet water en as dit vol is stoot die water 15 myl ver terug.

Die pragtige ligging van die dam en die mooi berglandskap wat dit omring het vroeg reeds die verbeelding van natuurliefhebbers aangegryp. Omdat gedeeltes van verskillende plase deur die dam onder water gebring sou word het die Staat die grootste gedeelte van die omliggende plase aangekoop nog voordat die dam gebou is. Hierdie gronde is in 1940 reeds tot wildreserwe verklaar. Op hierdie tydstip was daar nie baie wild in die gebied nie want behalwe vir kleinwildsoorte soos ribbokke, klipspringers, duikers en steenbokke het die oorspronklike wilde diere reeds verdwyn. Twee seekoeie het die vallei bewoon voordat die dam gebou is en nadat een tydens die bou van die dam deur 'n boer geskiet is het die bul alleen agtergebly totdat hy in 1952 geskiet is omdat hy gevaarlik begin word het.

Intussen het die krokodille en visse van die Olifantsrivier ongekende voorspoed belewe in die groot nuwe water. Die visse het die hengelaars gelok en vandag is Loskopdam in die eerste plek bekend as 'n hengeloord. Die bloukurper en rooiborskurper word hier besonder groot en visse van 3 tot 4 pond is algemeen. Verder is daar ook geelvis, karp, babers en palings in die dam.

Na die totstandkoming van die destydse Afdeling Fauna en Flora op 1 Junie 1947 was die Provinsiale Administrasie in staat om die Loskopwildreserwe te begin ontwikkel. Lede van die destydse Adviserende Raad insake Binnelandse Visserye het die plek in 1948 besoek en aanbevelings gedoen op grond waarvan die Provinsiale Sekretaris mnr. S. A. Lombard 'n memorandum oor die ontwikkeling van 'n natuurreservaat en 'n hengelen plesieroord te Loskopdam opgestel het.

Op 28 Januarie 1950 is die 15,000 morg staatsgrond waaruit die Natuurreservaat bestaan aan die Provinsiale Administrasie oorgedra (behalwe 884 morg wat eers op 22 Mei 1954 oorgedra is).

Nou was dit vir die eerste keer moontlik om die reservaat aktief te ontwikkel en teen die end van 1950 is £15,000 gestem vir die doel. Die eerste groot werk was om heinings te span wat die bestaande wild, waarvan 'n paar soorte reeds vantevore losgelaat is, sou binnehou en beeste sou uithou. Tot op datum is ongeveer 15 myl heining gespan teen 'n koste van

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LOSKOPDAM NATURE RESERVE AND PUBLIC RESORT

by S. S. du Plessis

THE NATURE RESERVE

COTTONFIELDS was once a small rural post office along the Olifants River in the heart of the mountains 40 miles north of Middelburg, Transvaal. This was in the days when the dreaded malaria mosquito dominated the lowveld; the fertile land further north was but sparsely populated by Europeans and the ordinary white man came there in the winter only in quest of a little piece of kudu or impala biltong.

Today Cottonfields' blue-gum trees stand half immersed in the water of the Loskop Dam and further north thousands of morgen of fertile fields are under irrigation. The construction of the wall was started in 1934 and completed in 1938 at a cost of £750,000. It is 1,420 feet in length and 186 feet in height. The dam holds 70,000 morgen feet of water and when full the water pushes back 15 miles.

The beautiful site of the dam and the fine mountainous landscape surrounding it soon captured the imagination of nature lovers. As portions of various farms would be inundated by the dam, the State purchased the major portion of the surrounding farms before the dam was built. This land was proclaimed as a game reserve as far back as 1940. At that time game did not abound in the area as the original wild animals, with the exception of small game species such as the rhebuck, klipspringer, duiker and steenbok had already become extinct. Before the dam was built the valley was inhabited by two hippopotami and after the cow had been shot by a farmer during the construction of the dam, only the bull remained until 1952 when it became dangerous and had to be destroyed.

Meanwhile the crocodiles and fish of the Olifants River were flourishing in the large expanse of new water. The fish attracted anglers and today Loskop Dam is known as a fishing resort par excellence. The blue and red-breasted kurpers attain particularly large proportions here and fishes weighing from 3 to 4 lb. are common. Yellowfish, carp, barbel and eel are also present.

After the then Fauna and Flora Section came into being on the 1st of June, 1947, the Provincial Administration was in a position to commence with the development of the Loskop Game Reserve. Members of the then Inland Fisheries Advisory Board visited the place in 1948 and made recommendations upon which the Provincial Secretary, Mr. S. A. Lombard, based a memorandum on the development of a nature reserve and an angling and pleasure resort at Loskop Dam.

On the 28th of January, 1950, the 15,000 morgen of public lands comprising the nature reserve were transferred to the Provincial Administration (with the exclusion of 884 morgen which were not transferred till the 22nd of May, 1954).

Now for the first time it was possible to go ahead with the development of the reserve and towards the end of 1950 £15,000 was voted for the purpose. The first major task was to erect fences in order to preserve the existing game, a few species of which had been released previously and

Die Openbare Oord, Loskopdam. The Loskopdam Public Resort.

to keep cattle out. To date approximately 15 miles of fencing has been erected at a cost of £5,000. The fence is 8 feet high and game proof. Firebreaks have been made on the boundaries every winter since 1950 coupled with controlled burning within the reserve.

Owing to the original scarcity of big game it was clear that the extinct species would have to be introduced again. In March, 1948, long before there was any fence, the first game were released there. These comprised seven zebra (two stallions and five mares) which were confiscated as they had been illegally captured by a private dealer in animals. These animals preferred a certain place just outside the reserve and a Native always had to herd and drive them back. In April of the same year the National Zoological Gardens in Pretoria donated a blue wildebeest bull and cow and in June a reedbuck ram and ewe. Since then blesbuck, impala, kudu, sable antelope, giraffe, ostrich and hippopotami have also been released by the Nature Conservation Section (formerly Fauna and Flora Section). These animals were caught mostly in the veld and transported to Loskop. The hippopotami may rightly be dubbed the black sheep of Loskop Dam, for despite the release there of several hippopotami captured with great difficulty, there is only one hippopotamus in the dam at present. The first one to be released, a young cow captured in the Limpopo on the 26th of October, 1950, was found dead thirteen days after with multiple injuries presumably caused by the old unattended bull living there. A year later news was received of an adult bull which had fallen into a cement reservoir on the farm Grietjie in the Letaba District and that it was unable to get

Office. Kantoor.

£5,000. Die heining is 8 voet hoog met die doringdrade onderlangs dig opmekaar sodat wild selde of ooit deur of oor die heining gaan. Voorbrande word reeds sedert 1950 elke winter op die grense gemaak, gepaard met beheerde brande binne die reservaat.

Vanweë die aanvanklike skaarste aan grootwild was dit duidelik dat die verdwene soorte weer sou moes ingevoer word. In Maart 1948, lank voordat daar 'n heining was, is die eerste wild reeds daar gelos. Dit was sewe sebras (twee hingste en vyf merries) wat gekonfiskeer was omdat hulle onwettig deur 'n private dierehandelaar gevang was. Hierdie diere het 'n sekere plek net buite die reservaat verkies en 'n Naturel moes hulle oppas en gereeld terugjaag. In April van dieselfde jaar skenk die Nasionale Dieretuin in Pretoria 'n blouwildebeesbul en -koei en in Junie 'n rietbokram en -ooi. Sedertdien is daar ook blesbokke, rooibokke, koedoes, swartwitpense, kameelperde, volstruise en seekoeie deur die Afdeling Natuurbewaring (vroeër Afdeling Fauna en Flora) gelos. Hierdie wild is almal in die veld gevang en daarheen vervoer. Die seekoeie kan met reg die swartskape van Loskopdam genoem word want, ten spyte van verskeie seekoeie wat met groot inspanning gevang en daar losgelaat is, is daar vandag net een seekoei in die dam. Die eerste een wat daar losgelaat is, 'n vers wat op 26 Oktober 1950 in die Limpopo gevang is, is na dertien dae dood aangetref met veelvuldige beserings wat vermoedelik veroorsaak is deur die ou alleenloperbul wat toe daar gewoon het. 'n Jaar later is berig ontvang van 'n volwasse bul wat op die plaas Grietjie in die distrik Letaba in 'n sementdam geval het en nie weer kon uit nie. Grietjie die Bul soos hy genoem is, is met groot moeite gevang en na Loskop gebring waar hy net 15 dae gelewe het.

In Januarie 1952 is 'n klein versie van 'n paar maande oud in die Olifantsrivier in die distrik Lydenburg gevang. Omdat sy nog te klein was om gras te vreet, is sy vir 'n jaar by die Provinsiale Visseryinstituut,

In die kantoor. In the office.

out again. Grietjie, the Bull, as he was called, was captured with great difficulty and brought to Loskop where he survived for only 15 days.

In January, 1952, a small female calf a few months old was captured in the Olifants River in the Lydenburg District. As she was still too small to eat grass she was reared for a year at the Provincial Fisheries Institute, Lydenburg, on milk, porridge and eggs. On the 10th December, 1952, she was released in the Loskop Dam, but unfortunately she had to be done away with on the 4th of August, 1953, as she became too fond of a neighbour's cornfield. Her name was Boesman.

On the 31st of January, 1952, another cow called Susz was captured in the Olifants River, but after a stay of only two years she also ran away. The only remaining " black sheep " is a bull captured in an irrigation canal near Groblersdal on the 22nd of May, 1953.

At present the reserve carries 16 species of game, namely: steenbok, duiker, oribi, klipspringer, impala, bushbuck, nyala, reedbuck, red rhebuck, blesbuck, sable antelope, zebra, blue wildebeest, kudu, giraffe and hippopotamus.

There is a rich variety of birds both on the dam and in the surrounding bush. Wild ducks and geese were supplemented by pinioned birds from Barberspan. The Witwatersrand Bird Club observed as many as 88 species of birds in the reserve, among which are rare and striking species such as the giant heron and the osprey.

Crocodiles are plentiful in the upper reaches of the dam but seldom venture near the rest camp. The following species of fish are known to frequent the dam: blue kurper, red-breasted kurper, carp, large-scaled yellow-fish, small-scaled yellow-fish, paper mouth, barbel, silver barbel, eel and beakfish. Except for the carp all are indigenous. No fish has ever been introduced into the Loskop Dam and the existing population developed on its own from fish originally inhabiting that portion of the Olifants River.

Two-roomed bungalow. Tweekamerhut.

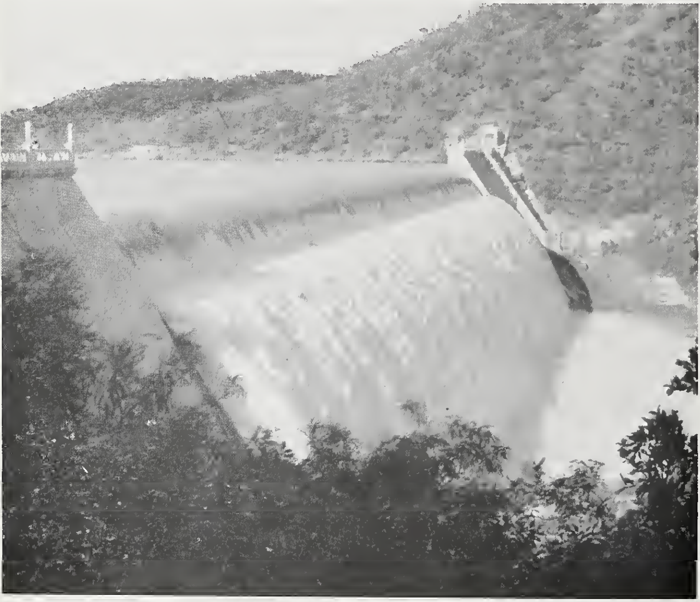
Lydenburg, op melk, pap en eiers grootgemaak. Op 10 Desember 1952 is sy in Loskopdam gelos maar ongelukkig het sy so baie gepla in die buurman se koringland dat sy op 4 Augustus 1953 van kant gemaak is. Haar naam was Boesman.

Op 31 Januarie 1952 is Susz ook in die Olifantsrivier gevang maar sy het na twee jaar in die dam weggedros rivier-af. Die enigste oorblywende swartskaap is 'n bul wat op 22 Mei 1953 in 'n besproeiingskanaal naby Groblersdal gevang is.

Tans bevat die reservaat 16 wildsoorte, naamlik: steenbok, duiker, oorbietjie, klipspringer, rooibok, bosbok, njala, rietbok, rooiribbok, blesbok, swartwitpens, sebra, blouwildebees, koedoe, kameelperd en seekoei.

Die reservaat is baie ryk aan voëlsoorte en die dam het ook 'n groot verskeidenheid van visvretende voëls, reiers en eendsoorte gelok. Wilde eende, makoue en ganse is aangevul deur gepende voëls wat op Barberspan gevang is. Die Witwatersrand Bird Club het reeds 88 voëlsoorte in die reservaat opgemerk waaronder seldsame en aanskouenswaardige soorte soos die reusereier en die visarend.

Krokodille is volop in die boonste deel van die dam maar waag dit selde naby die ruskamp. Uit die dam is die volgende vissoorte bekend: bloukurper, rooiborskurper, karp, grootskubgeelvis, kleinskubgeelvis, papierbek, baber, silwerbaber, paling en snawelvis. Behalwe die karp is almal inheems. Geen vis is nog ooit in Loskopdam ingevoer nie en die bestaande bevolking het vanself ontwikkel uit vis wat oorspronklik daardie deel van die Olifantsrivier bewoon het.



Die oorloop. The spillway.

The mountainous terrain surrounding the dam is characterized by a very interesting and variegated vegetation. Mr. A. O. D. Mogg has already recorded 221 species of plants here. Among these there are two rare species of cycads (*Encephalartos*).

THE PUBLIC RESORT

Formerly it was like this: once an angler started angling in the Loskop Dam, he wanted to continue doing so. His wife, however, accompanies him the first time only " because ", she complains, " while he sits angling oblivious to all around him, the children and I have to sit exposed to the heat of the sun in the open air ". Today this is no longer necessary, as there are a number of fine and convenient huts to accommodate the visitor.

On the 4th of October, 1951, the Executive Committee of the Provincial Council resolved to establish a public resort here. To date there are already 8 huts able to accommodate 32 persons. The huts are served by a spacious communal kitchen with stoves and sinks where visitors cook their own food. For those who prefer to cook on open fires a number of barbecues have been provided. Electricity and purified water are laid on in all the huts. Bedding and firewood are supplied to visitors. There are also tents for hire. Inquiries should be directed to:—

The Manager,
Loskop Dam Public Resort,
P.O. Damwal, *via* Middelburg, Tvl.

An administrative office, a dwelling-house for the manager and a boathouse have also been completed and a swimming bath, tennis courts and a restaurant will be erected in the near future. A 37-foot pleasure

Camping and fishing. Kampeer en visvang.

Die bergagtige terrein om die dam besit 'n baie interessante en wisselende plantegroei. Mnr. A. O. D. Mogg het reeds 221 plantsoorte hier versamel. Hieronder is twee seldsame soorte van kafferbroodboom (*Encephalartos*).

DIE OPENBARE OORD

Vroeër was dit so: as 'n hengelaar eers in Loskopdam begin visvang dan wil hy gereeld gaan. Sy vrou gaan egter net die eerste keer saam „want ", kla sy, „terwyl hy daar sit en visvang en alles om hom vergeet moet ek en die kinders in die warm son onder die blote hemel sit ". Vandag is dit nie meer nodig nie want nou staan daar 'n aantal pragtige en gerieflike grasdakhutte waarin die besoeker kan tuisgaan.

Op 4 Oktober 1951 het die Uitvoerende Komitee van die Provinsiale Raad besluit om hier 'n openbare oord aan te lê. Tot op datum is daar reeds agt hutte met akkommodasie vir 32 persone. Die hutte word bedien deur 'n ruim gemeenskaplike kombuis met stowe en wasbakke waar besoekers hulle eie kos kook. Daar is ook 'n aantal vuurmaakplekke waar vleis op die kole gebraai kan word. Elektriese krag en gesuiwerde water is aangelê in al die hutte. Beddegoed en vuurmaakhout word aan besoekers verskaf. Daar is ook tente te huur.

Navrae moet gerig word aan:—

Die Bestuurder,
Loskopdamse Openbare Oord,
Pk. Damwal,
oor Middelburg, Tvl.

'n Administratiewe kantoor, 'n woonhuis vir die bestuurder en 'n boothuis is ook reeds voltooi. 'n Swembad, tennisbane en 'n restaurant is in aanbou. Op die dam is daar een 37-voet plesierboot waarin besoekers teen 'n bedrag vir ritte op die dam geneem word, vanwaar die wild ook besigtig kan word. Daar is ook kleiner bote wat aan klein geselskappe verhuur word.

Loskop is bedoel om aan mense wat wil rus die geleentheid te gee om in die vrye natuur te ontspan naby die eenvoudige en mooi dinge van die veld en in hierdie doel is daar wel deeglik geslaag.

launch takes visitors for trips on payment of a nominal fee. On these trips game in the reserve may be seen. There are also smaller, fast boats available for hire to angling parties.

The aim of Loskop is to afford people desiring rest an opportunity of relaxing in the open near the simple and beautiful things of the veld and this aim has been fully achieved.

Buffalo heifer (Hans Merensky Nature Reserve).

Buffelvers (Hans Merensky-natuurreservaat.

DIE PERCY FYFE-NATUURRESERVAAT

deur T. B. Verschuur, B.Sc. (Agric.), F.B.S.C., A.A.C.S., A.F.B.

IN 1871 is die plaas Lunsklip No. 306, distrik Potgietersrus, groot 3,425 morg 454 vierkante roede, deur ene Marthinus Johannes van der Westhuizen van die Zuid Afrikaansche Republiek aangekoop vir 'n bedrag van £1. 10. Toendertyd het die plaas nog onder jurisdiksie van die Veldkornetskap Waterberg geressorteer. Later is die plaas deur Cornelius van Boeschoten aan Willem Johannes Leyds verkoop vir £88 wat dit op sy beurt weer aan Percy Poynton Fyfe in 1912 vir £2,000 verkoop het. 'n Gedeelte van die plaas, groot 492·5497 morg is in 1940 deur Jan Jonathan du Randt vir £1,231. 7s. 6d. gekoop en agt jaar later teen £10 per morg verkoop. Die resterende gedeelte van die plaas in die besit van mnr. Fyfe beslaan dus 2,932·2764 morg.

Die plaas het sy naam verkry uit 'n natuurlike pilaar van graniet aan die oewers van 'n spruit genaamd Rooisloot. Dit was die Voortrekkers se kampeerterrein op hulle pad van Pretoria na Louis Trichardt oor Blaauwberg. Pietersburg het toe nog nie bestaan nie. Die rotspilaar wat ongeveer 40 voet hoog is, lyk baie na die „ luns " of lunspen van 'n wa se as en vandaar die naam Lunsklip.

Gedurende die tyd wat dr. Leyds dit besit het, het hy 'n Naturellehoofman en sy stam toegelaat om op die plaas te woon as nedersetters wat huur betaal het. Toe mnr. Fyfe die plaas in 1912 verkry het, het daar ongeveer 800 Naturelle op die plaas gewoon. Na hierdie lang tydperk wat die plaas deur die Naturelle bewoon is, was dit erg verspoel en daar was skaars 'n boom te sien. Mnr. Fyfe het onmiddellik 'n stop aan die moedswillige vernietiging van inheemse bome en struike gesit. Daar is slegs onder die strengste beheer toegelaat dat daar geploeg word. Die meeste van die Naturelle is verwyder en net genoeg is behou vir werklike plaasarbeid. Die plaas is omhein en in 13 weikampe verdeel en daar is 'n begin gemaak met beesboerdery. Ongeveer 100 morge is afgesonder vir landbou en word nog steeds daarvoor gebruik—25 morg is onder permanente besproeiing. Alle wild, met die uitsondering van ongediertes, is streng bewaar.

Gedurende die kwaai droogte van 1933/34 het alle waterbronne opgedroog en mnr. Fyfe het toe besluit om gronddamme en sementwalle in die spruite te bou om water te bewaar. Van hierdie is daar op die oomblik 15 van elk wat almal vol water is.

Plantasies van bloekom- en basbome is aangeplant vir plaasgebruik en om inheemse bome te bewaar. Mnr. Fyfe skryf die huidige bedekking van bome en gras, in vergelyking met die omliggende grond, toe aan die oordeelkundige beweiding en beheer van veldbrande gedurende die wintermaande. Ou, nuttelose gras word slegs afgebrand na goeie reëns en dit benadeel nie die bome nie.

In September 1933 is ses blesbokke van die Somerville-reservaat, Oranje Vrystaat, op die plaas gebring en, ondanks die feit dat baie geskiet en gevang is, word daar geraam dat daar nog ongeveer 1,000 blesbokke op die plaas is. Mnr. Fyfe bewei ook ongeveer 500 stuks vee op die reservaat.

THE PERCY FYFE NATURE RESERVE

by T. B. Verschuur, B Sc. (Agric.), F.B.S.C., A.A.C.S., A.F.B.

IN 1871 the farm Lunsklip No. 306, District of Potgietersrus, in extent 3,425 morgen 454 square roods, was acquired from the Zuid Afrikaansche Republiek by one Marthinus Johannes van der Westhuizen for the sum of £1. 10s. At that time the farm still fell under the jurisdiction of the Field Cornetcy of Waterberg. Later the farm was sold by Cornelius van Boeschoten to Willem Johannes Leyds for £88 who in turn disposed of it to Perey Poynton Fyfe in 1912 for £2,000. A portion of the farm, in extent 492·5497 morgen, was purchased by Jan Jonathan du Randt for £1,231. 7s. 6d. in 1940 and sold at £10 per morgen eight years later. The remaining extent of the farm owned by Mr. Fyfe thus comprised 2,932·2764 morgen.

The farm derives its name from a natural pillar of granite rock on the banks of a spruit called the Rooisloot. This was the Voortrekkers' camping site on their way from Pretoria to Louis Trichardt via Blaauwberg. Pietersburg did not then exist. The rock pillar about 40 feet high, very much resembles the " luns " or linchpin of a wagon axle, hence the name Lunsklip.

During Dr. Leyd's ownership he allowed a Native chief and his tribe to settle on the farm as rent paying squatters. When Mr. Fyfe acquired the farm in 1912, there were about 800 Natives living there. After this long period of occupation by Natives the farm was badly eroded and there was hardly a tree to be seen on it. Mr. Fyfe immediately put a stop to the wanton destruction of indigenous trees and bush. Ploughing was allowed only under the strictest control. Most of the Natives were turned off, only sufficient being retained for actual farm labour. The farm was fenced and divided into 13 grazing camps and cattle farming undertaken. About 100 morgen were set aside for agriculture and are still in use—25 morgen being under permanent irrigation. All wild life with the exception of vermin was rigidly preserved.

During the severe drought of 1933/34 all water supplies dried up and Mr. Fyfe then decided to build earth dams and cement weirs in the spruits to conserve water. Of these there are at present 15 of each all full of water.

Plantations of gum and wattle trees were put in for farm use and to save indigenous trees. Mr. Fyfe attributes the present cover of trees and grass in comparison with the surrounding country to the judicious grazing and control of veld fires in the winter months. Old, useless grass is only burnt off after good rains and does not affect the trees.

In September, 1933, six blesbuck were introduced from the Somerville Reserve, Orange Free State, and in spite of many having been shot and caught, it is estimated that there are now still about 1,000 on the farm. Mr. Fyfe also grazes about 500 head of cattle on the reserve.

Towards the end of 1950 Mr. Fyfe intimated that it was his wish and intention, subject to certain conditions, to donate Lunsklip to the Provincial Administration for a wildlife sanctuary, a nature reserve which at the same time would serve as a soil and water conservation demonstration farm.

„ Lunsklip ”.

“ Lunsklip ”.

After protracted negotiations with Mr. Fyfe the farm was eventually registered in the name of the Government on the 25th April, 1953, by virtue of Deed of Transfer No. 8827/1953. Under this Deed both parties naturally have to adhere to certain conditions, the most important of which are briefly mentioned here: all trading and mineral rights are reserved to Mr. Fyfe, his heirs, successors or assigns; the farm or any portion thereof can not be alienated without the consent of the Supreme Court; Mr. and Mrs. Fyfe enjoy a life usufruct of the property with the right to run and graze not more than 500 head of cattle. The Administration, on the other hand, took immediate control of all wild life, fish and indigenous flora: undertook to spend in each period of five years for conservation purposes an amount equivalent to the proceeds received from the sale of game and fish and, furthermore, pledged that no over-grazing would take place; it also received the right to erect such fencing and buildings as may be required by officials and to execute such soil and water conservation works as may seem necessary.

Early in 1953 a Fauna and Flora Inspector was stationed at Lunsklip, but it soon became increasingly evident that in order to implement the terms of agreement reached with Mr. Fyfe as far as conservation was concerned, it would be necessary to create a post of Farm Foreman; such post was duly created and ably filled with effect from the 7th July, 1954, by Mr. D. P. Pienaar, a brother to the famous Sangiro.

As a result of Mr. Fyfe's magnanimous gesture, the Fauna and Flora Advisory Board decided that the farm should be proclaimed as a Nature Reserve and be honoured by his name: The Percy Fyfe Nature Reserve was duly proclaimed as such on the 8th September, 1954. It is not generally known that all fauna and flora occurring on a nature reserve is strictly protected under the provisions of the Game and the Native Flora Protection Ordinances; the former provides for a minimum penalty of £100 or six months imprisonment for any infringement of the Ordinance.

One of the fifteen earth dams. Een van die vyftien gronddamme.

Teen die end van 1950 het mnr. Fyfe te kenne gegee dat dit sy wens en voorneme is om, op sekere voorwaardes, Lunsklip aan die Provinsiale Administrasie te skenk as 'n toevlugsoord vir wild en as 'n natuurreservaat wat terselfdertyd sal dien as 'n demonstrasieplaas vir grond- en water bewaring.

Na langdurige onderhandelings met mnr. Fyfe is die plaas uiteindelik op 25 April 1953 in die naam van die Goewerment geregistreer kragtens Transportakte No. 8827/1953. Ingevolge hierdie akte moet albei partye hulle natuurlik aan sekere voorwaardes hou, die belangrikste waarvan kortliks hier vermeld word: alle handels- en mineraleregte word aan mnr. Fyfe, sy erfgename, opvolgers of regsverkrygers voorbehou; die plaas, of enige gedeelte daarvan, kan nie sonder die toestemming van die Hooggeregshof van die hand gesit word nie; mnr. en mev. Fyfe geniet 'n lewenslange vruggebruik van die eiendom met die reg om hoogstens 500 stuks beeste daarop te laat loop en te laat wei. Die Administrasie, aan die ander kant, het onmiddellike beheer oor alle wild, vis en inheemse flora geneem; het onderneem om in elke tydperk van vyf jaar 'n bedrag gelykstaande aan die opbrengs uit die verkoop van wild en vis aan bewaringsdoeleindes te bestee en het voorts onderneem om geen oorbeweiding te laat plaasvind nie; hy het ook die reg ontvang om sodanige omheining en geboue as wat amptenare nodig het, op te rig en om sodanige grond- en waterbewaringswerk as wat nodig mag wees, uit te voer.

Vroeg in 1953 is 'n fauna- en flora-inspekteur te Lunsklip gestasioneer maar dit het al gou duidelik geword dat, ten einde uitvoering te gee aan die voorwaardes van ooreenkoms met mnr. Fyfe aangegaan wat bewaring aanbetref, dit nodig sal wees om 'n pos van plaasvoorman te skep; sodanige pos is behoorlik geskep en met ingang van 7 Julie 1954 af word dit op bekwame wyse gevul deur mnr. D. P. Pienaar, 'n broer van die beroemde Sangiro.

As gevolg van mnr. Fyfe se grootmoedige gebaar het die Raad van Advies insake Fauna en Flora besluit dat die plaas tot Natuurreservaat verklaar word en vereer word deur sy naam: Die Percy Fyfe-natuurreservaat is op 8 September 1954 behoorlik tot Natuurreservaat geproklameer. Dit is nie algemeen bekend nie dat alle fauna en flora wat op 'n Natuurreservaat voorkom, ten strengste beskerm word, ingevolge die bepalings van die Wildordonnansie en die Ordonnansie op die Beskerming van Inheemse Flora: eersgenoemde maak voorsiening vir 'n minimum boete van £100 of ses maande gevangenisstraf vir enige oortreding van hierdie Ordonnansie.

Die hele plaas is omhein met 'n stewige wildheining; meer as 13 binnekampe is ook omhein en word gebruik vir wisselweiding. Die suidelike gedeelte van die reservaat is afgekamp vir die groter soorte wild wat in die nabye toekoms aangebring sal word. Op die noordelike sektor—die weiding van die blesbokke—het 'n taamlike mate van erosie plaasgevind. Swaar masjinerie word op die oomblik aangekoop om hierdie bedreiging te bestry en om kontoervore te voorsien waar dit nodig is.

Die doel met reservate soos die Percy Fyfe-, die S.A. Lombard- naby Bloemhof in die Wes Transvaal en die Hans Merensky-natuurreservaat in die Noorde is nie slegs om skaars Transvaalse soorte wild te beskerm teen uitroeiing nie maar ook om hulle te teel vir herverspreiding onder boere en ander belanghebbendes.

The entire farm is ringfenced with a stout game fence; upwards of thirteen inner camps are also fenced and used for rotational grazing. The southern portion of the reserve has been camped off for the larger species of game which will be introduced in the near future. On the northern sector—the grazing ground of the blesbuck—a fair amount of erosion has taken place. Heavy machinery is at present being acquired to eombat the menace and to provide contour furrows where required.

The object of the reserves such as Percy Fyfe, the S.A. Lombard near Bloemhof in the Western Transvaal and the Hans Merensky Nature Reserve in the north, is not only to save rare Transvaal species from extinction, but to breed them for redistribution to farmers and other interested parties.

The natural increase of the blesbuck on the farm is in the neighbourhood of 300 lambs per annum. In order to prevent overstocking, old rams are thinned out each autumn and once or twice yearly, depending on the demand, the remainder are rounded up and as many as are required are captured.

The round-up is an event well worth witnessing! On the slopes of the northern portion of the reserve a camp has been set aside specifically for capturing blesbuck harmlessly and alive. The method used is this: two game fences in the form of a large funnel converge to form a crush passage some ten yards in length which in turn leads into a circular passage provided with two farm gates. Some distance away a corrugated iron enclosure eight feet in height is located. This is the keeping kraal where the blesbuck are retained until such time as they are entrucked and transported to pastures new. Normally eight Europeans and ten Natives take part in the drive. Half the number taking part are concealed in the corrugated iron enclosure from which, incidentally, no one can see, while the remainder converge on the buck at the mouth of the funnel. Absolute

Entrance to the crush. Ingang tot die drukgang.

Die natuurlike aanwas van die blesbokke op die plaas is ongeveer 300 lammers per jaar. Ten einde oorbeweiding te voorkom, word ou ramme elke herfs en een of twee maal per jaar uitgedun al na die aanvraag en die origes word bymekaar gemaak en soveel as wat nodig is, word gevang.

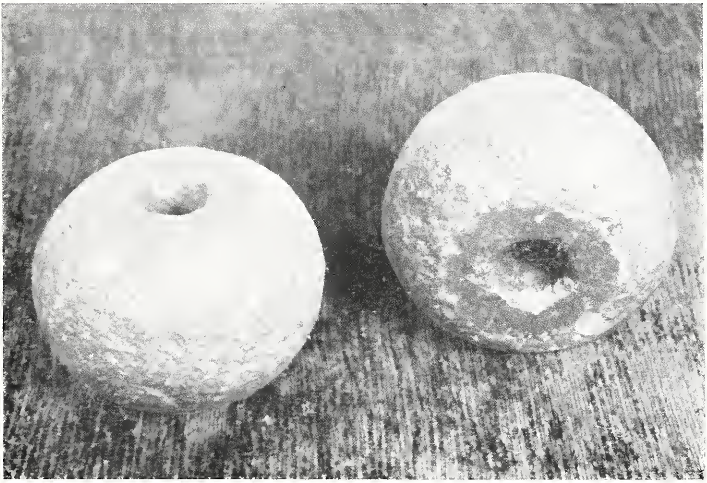
Hierdie klopjag is 'n gebeurtenis wat die moeite werd is om te aanskou! Aan die hange van die noordelike gedeelte van die reservaat is 'n kamp spesiaal afgesonder om blesbokke op skadelose wyse lewendig te vang. Die volgende metode word gebruik: twee wildheinings in die vorm van 'n groot tregter kom al nader na mekaar om sodoende 'n drukgang te vorm wat ongeveer tien jaart lank is en wat op sy beurt weer uitloop in 'n sirkelvormige gang wat voorsien is van twee plaashekke. 'n Endjie daarvandaan af is 'n sinkplaatkamp agt voet hoog, geleë. Dit is die houkraal waar die blesbokke gehou word tot tyd en wyl hulle opgelaai en na nuwe tuistes vervoer word. Normaalweg neem agt blankes en tien Naturelle aan die klopjag deel. Die helfte van dié wat deelneem, word versteek in die sinkheining waaruit, terloops, niemand kan sien nie, terwyl die origes op die bokke in die mond van die tregter toesak. Absolute stilte word gehandhaaf beide deur die weggesteekte groep en die drywers want, indien 'n bok skrik, sal die hele trop in dolle vaart oploop gaan, alles in hulle pad vertrap en baie ure sal verlore gaan om hulle weer in die tregter aangekeer te kry. Die drywers jaag die bokke metodies en uiters langsaam in die al nouer wordende tregter af totdat hulle uiteindelik in die drukgang geforseer word waaruit hulle gladnie kan ontsnap nie. Met druk van agter word die diere in die gang af tot in die sirkelvormige gang geforseer. In hierdie stadium word met 'n fluitjie 'n teken aan die versteekte manne gegee en daar is 'n dolle toeloop na die hekke. By elke hek neem 'n blanke stelling in, gryp 'n bok aan sy horings, skop die hek oop en gee die horings aan 'n wagtende helper wat die bok deur die hek sleep. Onmiddellik nadat die hek toegeskop is, word nog 'n bok deur die wagter by die hek gegryp en gereed gehou om aan die volgende helper aan te gee wat agter die eerste een tou staan. As die bok eers eenmaal uit die sirkelvormige kamp is, is dit 'n kwessie van mensekrag teenoor dierekrag: eersgenoemde hou vir al wat hy werd is en sleep die dier stadig maar seker na die ysterkamp toe; laasgenoemde veg om lewe en dood in 'n poging om vry te kom van die meedoënlose greep wat hom die onbekende in forseer. Die volgroeide diere maak geen geluid terwyl die worstelstryd aan die gang is nie maar die jonger diere blêr onophoudelik. Uiteindelik word die kamp bereik, die deur word oopgemaak en die bok in die kraal gestoot. Wanneer ongeveer 40 bokke gevang is, trek die boere en ander belanghebbendes hulle lorries teen die hek waar die bokke weereens aan die horings en die bene gevang en in die lorrie geplaas word. Terloops, hierdie voertuie moet spesiaal toegemaak en van binne uitgevoer word met gras of ou matrasse om voor die hand liggende redes. Onlangs is 150 blesbokke op hierdie manier gevang sonder dat een oorlede is.

En wanneer die dag se taak afgehandel is, vergader hierdie gespierde kêrels van die afdeling Natuurbewaring om die kampvuur en terg mekaar terwyl hulle die wonde verbind wat deur hulle kwaai teenstanders gedurende die dag aangebring is.

Mnr. Fyfe het onlangs 'n interessante klip aan hierdie afdeling se museum geskenk. Hierdie implement—die graafstokklip—'n ronde klipbal met 'n gat deur die middel en wat gebruik word om gewig te verleen aan 'n skerp stok waarmee eetbare wortels uitgegraaf word—is tesame met

silence is observed both by the concealed party and by the drivers for, should a buck take fright the entire herd would stampede, trample anything in its way and many hours lost in herding them into the funnel again. Methodically and painstakingly the drivers move the blesbuck slowly down the narrowing funnel until they are at last forced into the crush passage from which escape is impossible. With pressure from behind the animals are forced down the passage into the circular run. At this stage the men who have been concealed are signalled by whistle and there is a mad scramble for the gates. Each gate is manned by a European who grabs a buck by its horns, kicks open the gate, passes the horns onto a waiting helper who tugs the buck out of the gateway. Immediately the gate is kicked shut, another buck is secured by the keeper of the gate and held ready for passing to the next helper who has queued up behind the first. Once a buck has been released from the circular run it is a matter of human over animal strength: the former hangs on for dear life pulling the animal slowly but surely towards the corrugated iron enclosure; the latter fights like grim death in an endeavour to free himself from the relentless grip which is forcing him to who knows what. No sound emanates from the full-grown animals while this struggle goes on, but the younger animals bleat incessantly. Finally the enclosure is reached, the door opened and the buck forced into the kraal. When some forty buck have been captured, the farmers and other interested parties back their lorries up to the doorway where once again the buck are tackled by the horns, grabbed by the legs and placed on the lorry. Incidentally these vehicles have to be specially enclosed and padded with grass or old mattresses for reasons which are obvious. Recently 150 blesbuck were captured in this way without a single casualty.

And when day is done these wiry lads of the Nature Conservation Section gather around the camp fire chaffing each other while they bandage the wounds inflicted by their tough adversaries during the day.



The digging-stick stone. Die graafstokklip.

baie ander voorbeelde op Lunsklip gevind. Baie teorieë betreffende die presiese gebruik van hierdie klip is geopper maar volgens dr. Vivian FitzSimons van die Transvaalse Museum kan niemand met sekerheid sê waarvoor dit gebruik is nie. Dit kon miskien gebruik gewees het om mielies mee te maal of, toegerus met 'n skerp punt, oor 'n wildpad gesit gewees het om wild mee om die lewe te bring. Nog 'n teorie is dat 'n aantal van hierdie klippe aanmekaar geryg sou gewees het en oor 'n geploegde land getrek om die groot kluite mee stukkend te breek. Dit kan miskien die oorsaak wees van die plat oppervlaktes aan die kante van die klippe soos in die foto gesien kan word.

Alhoewel ystersmeltery lank reeds uitgesterf het onder die Naturellestamme van hierdie streek, het dit op een tydperk 'n belangrike rol in hulle nywerheidslewe gespeel; hulle het waarskynlik die kuns met hulle saamgebring toe hulle die eerste maal na Noord-Transvaal toe gekom het. Groot hoeveelhede van die neerslag wat agter bly na die smeltproses plaasgevind het, word nog op die plaas gevind.

Weens die bedagsaamheid van mnr. Fyfe, sal die Natuurreservaat wat na hom vernoem is, vir alle tye dien as 'n lewende monument van hierdie Wonderlike Ou Man.

Mr. Fyfe recently presented an interesting stone to the Section's Museum. This implement—the digging-stick stone—is a round stone ball, perforated through the centre and used to weight a sharp stick for procuring edible roots—was found together with many other specimens on Lunsklip. Many theories regarding the precise use of this stone have been advanced, but according to Dr. Vivian FitzSimons of the Transvaal Museum no one can say for certain to what use it was put. It may have been used for grinding corn or have been fitted with a spear-head and set over a game-path for killing game. Another theory is that a number of these stones were threaded together and pulled over a ploughed land in order to break the larger clods: this may account for the flat surfaces on the sides of the stones as depicted in the photograph.

Although iron smelting has long since been extinct among the Native tribes of this region it used to play an important part in their industrial life; they probably brought the art with them when they first came to the Northern Transvaal. Large quantities of the slag remaining after the smelting process had taken place, are still to be found on the farm.

Due to the forethought of Mr. Fyfe, the nature reserve named after him will for all time serve as a living monument to this Grand Old Man.

'N DOELTREFFENDE BOBBEJAANVANGHOK

deur V. FitzSimons

IN die distrikte Bedford en Somerset-Oos het boere al sedert 'n geruime tyd in die verlede 'n menigte bobbejane gevang deur middel van 'n vanghok wat oorspronklik deur wyle Henry Shone van Waterval, distrik Bedford, ontwerp en vervaardig is vir die vang van wildevarke snags en bobbejane bedags. Hierdie vanghok wat ek persoonlik in gebruik gesien het, is ongetwyfeld 'n allerdoeltreffende en geslaagde toestel, soos blyk uit die feit dat mnr. Harold Shone, van die distrik Somerset-Oos, rapporteer dat hy self oor die afgelope 20 jaar meer as 800 bobbejane in dergelike hokke gevang het.

Aangesien dit alom bekend is dat bobbejane ook baie skade op Transvaalse plase aanrig, is daar gemeen dat die besonderhede van so 'n hok meer algemeen bekendgemaak moet word. Om hierdie rede het ek aan mnr. Harold Shone, van Hartfell, Somerset-Oos, geskryf en hy het goedgunstiglik nou al die nodige besonderhede vir die bou van hierdie hokke aan my verstrek.

In die eerste plek het dit uit ondervinding geblyk dat dit beter is om minstens twee vanghokke of, nog beter, drie (sien bygaande skets) op 'n ry aanmekaar te bou weens die feit dat die tropleiers baie gou die doel van die hok agterkom en in die ingang sit om te verhoed dat ander bobbejane daarin kom.

Die volgende materiaal word benodig:—

(1) *Pale.*—Elf sterk pale, 5 voet 6 duim lank vir regoppale van 'n enkelhok (18 vir 'n dubbel- en 25 vir 'n driedubbelhok); 2 pale, 12 voet lank vir 'n enkelhok (3 vir 'n dubbel- en 4 vir 'n driedubbelhok); en 3 pale, 5 voet lank, vir dwarsbalke van die bokant van die hok.

(2) Een × 50-jaarts rol, 5-voet jakkalsdraad (of 2 rolle 3-voetdraad) is genoeg vir drie hokke.

(3) Een rol gegalvaniseerde draad No. 8 sal vir drie hokke genoeg wees.

Wanneer die raam van die hok gemaak word (sien skets) word die No. 8 gegalvaniseerde draad oor die bokant en kante ongeveer 8 duim van mekaar deurgevleg om dit sterker te maak. Die jakkalsdraad word dan om die hok gesit en stewig aan die raamwerk sowel as aan die versterkingsdraad vasgemaak en die hok word dan stewig in die grond geplant soos op die bygaande skets aangetoon.

Die deur kan van $\frac{3}{4}$ duim tot 1 duim dik plank en dun staal of yster wees en ingerig word om op en af te skuif in 'n gleuf tussen stroke hout of hoekyster wat aan twee regopbalke van hout, $1\frac{1}{2}$ duim by $4\frac{1}{2}$ duim vasgespyker of gebout is. 'n Gegleufde dwarsbalk moet ook onder aangebring word om te verhoed dat die vasgekeerde bobbejane hul vingers onder die deur insteek en dit oplig.

AN EFFECTIVE BABOON TRAP

by V. FitzSimons

IN the Bedford and Somerset East Districts, farmers have, for some time past, been catching baboons in large numbers by means of a cage-trap, first devised and made by the late Henry Shone of Waterfall, Bedford District, for catching wild pigs by night and baboons by day. This trap, which I have personally seen in use is undoubtedly a most effective and successful device, as witness the fact that Mr. Harold Shone, of Somerset East District, reports that over the past 20 years he has himself caught over 800 baboons in similar traps.

As it is well known that baboons are also the cause of much damage on Transvaal farms, it was thought that the details of such a trap should be made more universally known. To this end I wrote to Mr. Harold Shone, of Hartfell, Somerset East, who has now kindly supplied me with all the necessary particulars for the construction of these traps.

In the first place it has been found by experience that it is better to construct at least two trap-cages, or even better three (see accompanying sketch), side by side, owing to the fact that the troop leaders very soon get wise to the cage and sit in the entrance doorway to prevent other baboons from getting in.

The materials needed are as follows:—

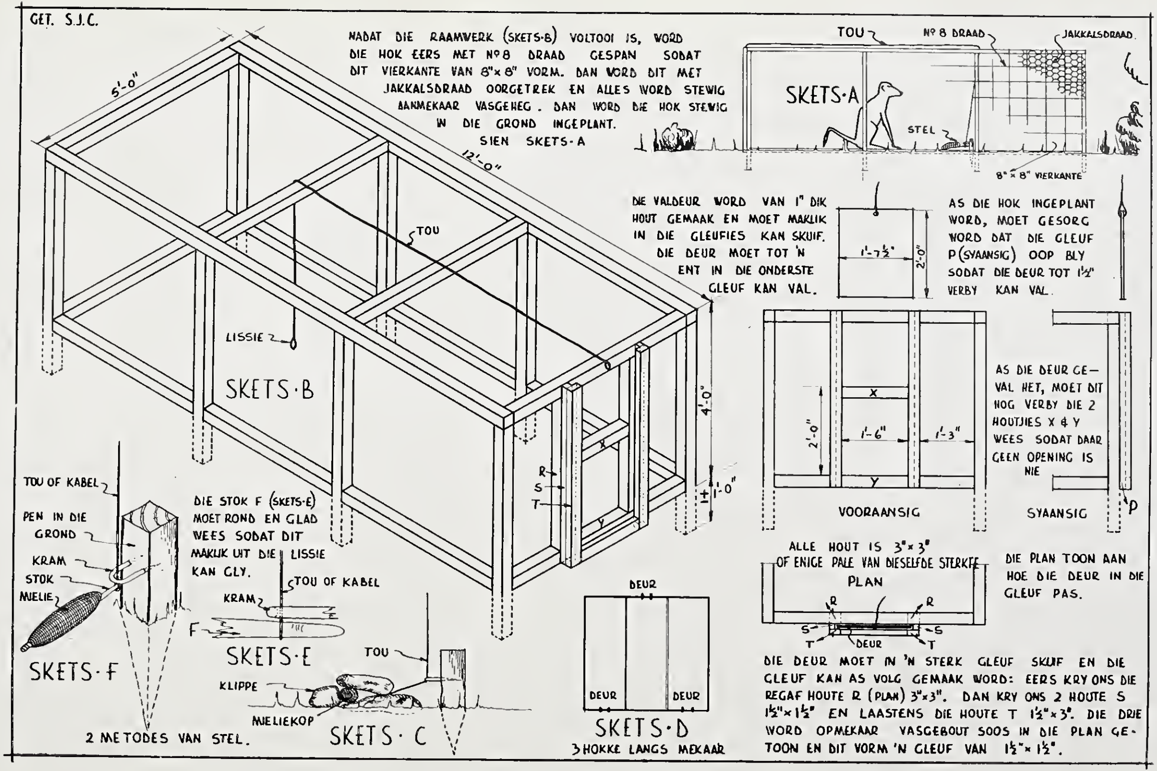
(1) *Poles.*—11 strong poles, 5 feet 6 inches long for uprights of a single cage (18 for a double and 25 for a treble cage); 2 poles, 12 feet long, for a single cage (3 for a double and 4 for a treble cage); and 3 poles of 5 feet long for crossbeams to top of cage.

(2) One by 50 yards roll of 5 feet Jackal netting wire (or 2 rolls of 3 feet wire) is enough for three cages.

(3) One roll of No. 8 galvanised wire will serve for 3 cages.

When frame of cage is made (see sketch) the No. 8 galvanised wire is interlaced across top and sides at intervals of about 8 inches to give additional strength. The cage is then covered with the Jackal netting wire and fastened securely to the framework and the reinforcing wire and set well into the ground as shown in accompanying sketch.

The door can be of $\frac{3}{4}$ inch to 1 inch plank, thin steel or iron, and fitted to slide up and down in a slot between strips of wood or angle-iron bolted or nailed on to two upright beams of wood, $1\frac{1}{2}$ by $4\frac{1}{2}$ inches. A slotted cross beam must also be fitted at the bottom, to prevent the trapped baboons getting their fingers under the door and lifting it.



NADAT DIE RAAMWERK (SKETS-B) VOLTOOI IS, WORD DIE HOK EERS MET Nº 8 DRAAD GESPAN SODAT DIT VIERKANTE VAN 8"×8" VORM. DAN WORD DIT MET JAKKALSDRAAD OORGETREK EN ALLES WORD STEWIG AANMEKAAR VASGEHEG. DAN WORD DIE HOK STEWIG IN DIE GROND INGEPLANT. SIEN SKETS-A

DIE VALDEUR WORD VAN 1" DIK HOUT GEMAAK EN MOET MAKLIK IN DIE GLEUFIES KAN SKUIF. DIE DEUR MOET TOT 'N ENT IN DIE ONDERSTE GLEUF KAN VAL.

AS DIE HOK INGEPLANT WORD, MOET GESORG WORD DAT DIE GLEUF P (SYAANSIG) OOP BLY SODAT DIE DEUR TOT 1½" VERBY KAN VAL.

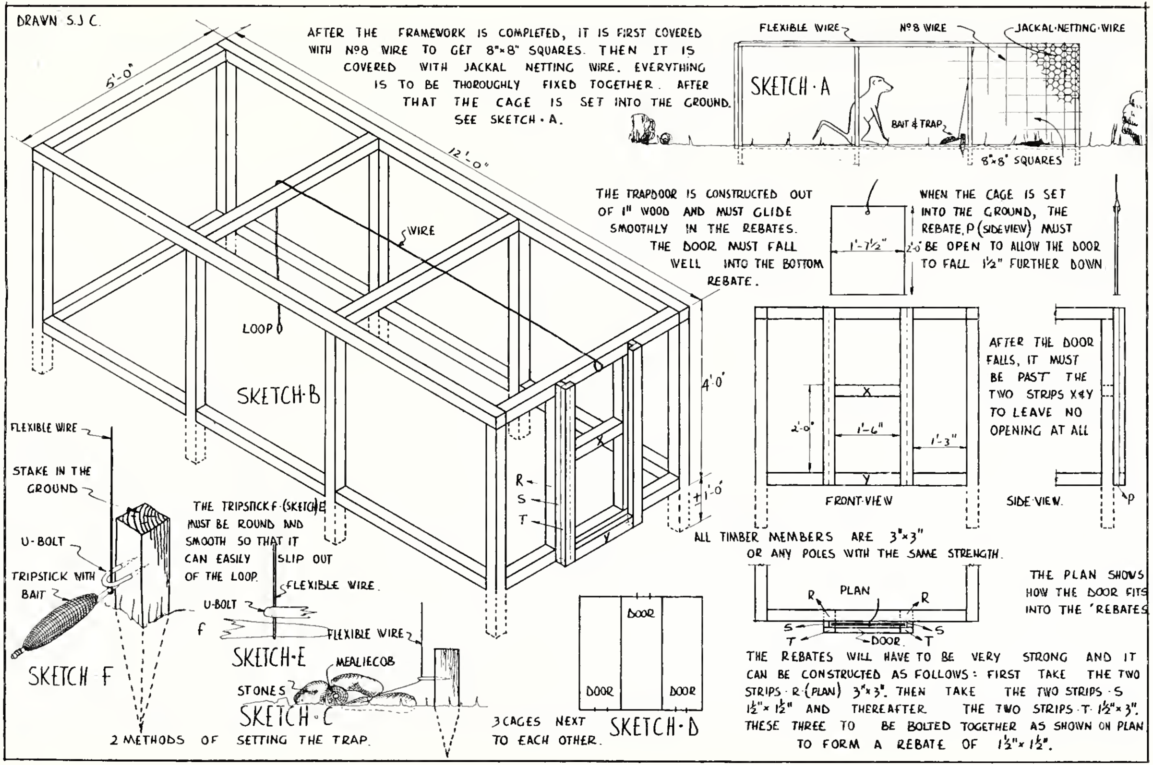
AS DIE DEUR GEVAL HET, MOET DIT NOG VERBY DIE 2 HOUTJIES X & Y WEES SODAT DAAR GEEN OPENING IS NIE

ALLE HOUT IS 3"×3" OF ENIGE PALE VAN DIESELFDE STERKTE

DIE PLAN TOON AAN HOE DIE DEUR IN DIE GLEUF PAS.

DIE DEUR MOET IN 'N STERK GLEUF SKUIF EN DIE GLEUF KAN AS VOLG GEMAAK WORD: EERS KRY ONS DIE REGAF HOUTE R (PLAN) 3"×3". DAN KRY ONS 2 HOUTE S 1½"×1½" EN LAASTENS DIE HOUTE T 1½"×3". DIE DRIE WORD OPMEKAAR VASGEBOUT SOOS IN DIE PLAN GETOON EN DIT VORM 'N GLEUF VAN 1½"×1½".

DIE STOK F (SKETS-E) MOET ROND EN GLAD WEES SODAT DIT MAKLIK UIT DIE LISSIE KAN GLY.



AFTER THE FRAMEWORK IS COMPLETED, IT IS FIRST COVERED WITH Nº8 WIRE TO GET 8"×8" SQUARES. THEN IT IS COVERED WITH JACKAL NETTING WIRE. EVERYTHING IS TO BE THOROUGHLY FIXED TOGETHER. AFTER THAT THE CAGE IS SET INTO THE GROUND. SEE SKETCH·A.

THE TRAPDOOR IS CONSTRUCTED OUT OF 1" WOOD AND MUST GLIDE SMOOTHLY IN THE REBATES. THE DOOR MUST FALL WELL INTO THE BOTTOM REBATE.

WHEN THE CAGE IS SET INTO THE GROUND, THE REBATE, P (SIDEVIEW) MUST BE OPEN TO ALLOW THE DOOR TO FALL 1½" FURTHER DOWN.

AFTER THE DOOR FALLS, IT MUST BE PAST THE TWO STRIPS X & Y TO LEAVE NO OPENING AT ALL.

ALL TIMBER MEMBERS ARE 3"×3" OR ANY POLES WITH THE SAME STRENGTH.

THE PLAN SHOWS HOW THE DOOR FITS INTO THE 'REBATES'.

THE REBATES WILL HAVE TO BE VERY STRONG AND IT CAN BE CONSTRUCTED AS FOLLOWS: FIRST TAKE THE TWO STRIPS·R·(PLAN) 3"×3". THEN TAKE THE TWO STRIPS·S 1½"×1½" AND THEREAFTER THE TWO STRIPS·T·1½"×3". THESE THREE TO BE BOLTED TOGETHER AS SHOWN ON PLAN TO FORM A REBATE OF 1½"×1½".

THE TRIPSTICK F (SKETCH E) MUST BE ROUND AND SMOOTH SO THAT IT CAN EASILY SLIP OUT OF THE LOOP.

2 METHODS OF SETTING THE TRAP.

3 CAGES NEXT TO EACH OTHER.

AAS IN VANGHOK

'n Klein stewige pen word halfpad tussen die kante van die hok en tweederdes van die afstand vanaf die deur na die agterkant van die hok ingeslaan. Halfpad langs die pen op word 'n draadlissie of kram geheg en die punt van die kabel wat die valdeur vrylaat, waarin ook 'n ogie gemaak is, word dan deur die lissie gesteek. Die deurkabel kan van draad of tou gemaak word. Aan die aas, d.w.s. mieliekop, word 'n stokkie of kort stukkie draad vasgemaak en die ent van laasgenoemde deur die ogie van die deurkabel gesteek sodat wanneer die aas weggetrek word, die deurkabel vrygelaat word, die deur val en die ingang toemaak.

Aangesien die bobbejane gou agterkom dat die deur val as die mieliekop getrek word, moet die metode om die deurkabel vas te anker elke paar weke verander word, soos deur die mielies bv. in 'n helder glasbottel of in 'n gaasdraadhouer, ens., te sit of eenvoudig deur mielies onder 'n klip wat effens gelig is, te strooi sodat wanneer dit opgelig word, die knip vrygestel word en die deur val.

Mielies moet so oor die vloer gestrooi word in die voorste gedeelte van die hok, dat dit tot aan die agterkant by die eintlike aas lei. Geen honde mag naby die hokke toegelaat word nie aangesien hul reuk die bobbejane sal weghou.

Die hok (of hokke) moet ver weg van woonplekke geplaas word sodat die bobbejane daaraan gewoond kan raak sonder dat hulle gepla word. Aangesien dit soms lank duur voordat die bobbejane in die hok sal gaan, moet geduld uitgeoefen word teneinde te verseker dat sukses uiteindelik behaal word. Die meeste bobbejane word gedurende die wintermaande, wanneer kos skaars is, gevang en as hulle eers aan die hok gewoond raak, is dit verbasend hoeveel daar gelyktydig sal indruk en dan gevang word (soveel as ses is al opgemerk).

Baiting of Trap

A small stout stake is driven into the ground midway between the sides of cage and about two-thirds of the way back from the door. Halfway up the stake is attached a U-bolt or hook of wire, under and through which is passed the looped end of the door release wire or cord. Into the bait (i.e. mealie cob) is inserted a small stick or short length of wire and end of latter passed into loop of door release wire, so that when bait is pulled away, the door release wire is freed and the door drops to close entrance.

As the baboons soon get to know that pulling the mealie cob causes the door to fall, the method of anchoring the release wire must be changed every few weeks, such as by putting the mealies in a clear glass bottle or in a fine wire gauze container, etc., or by just sprinkling mealies under a slightly upraised stone which, when lifted, releases the catch and allows door to close.

Mealies should be sprinkled over floor in front part of cage, leading back to the trap-release bait. No dogs must be allowed near cages as their smell will put the baboons off approaching it.

The cage (or cages) should be sited well away from habitations, so that the baboons can get used to them without molestation. As it sometimes takes a long time before baboons will enter the cage, patience must be exercised if success is to be eventually achieved. It is usually during the winter months, when food is scarce, that the baboons are caught in the greatest number and, having once got used to the cage, it is remarkable how many will squeeze in at a time (up to six have been recorded) and get trapped.

DIE BORASSUS-PALM IN TRANSVAAL

deur **S. S. du Plessis**

BY Thabina, vlak teen die grootpad van Leydsdorp na Tzaneen, staan 'n merkwaardige kaal boomstam. Dit is die enigste herinnering aan een van Transvaal se bekendste bome, Seluma, die dreunpalm. Voor sy dood in 1954 was hierdie eensame 68 voet hoë reus van 'n palm 'n uitstaande landmerk in 'n see van bosveldbome. Menige toeris het hier stilgehou en gewonder oor die snaakse boom met die swelsel in die stam en die reusagtige blare waardeur die geringste windjie dreun soos 'n véraf storm.

Hierdie palmsoort (*Borassus flabellifer var. aethiopum*) is wydverspreid in Sentraal-Afrika en word ook in Indië aangetref. Botaniste is egter van mening dat dit inheems in Afrika is en deur die mens in Indië ingevoer is.

Die voorkoms van Borassus-palms in Transvaal is interessant omdat hulle hier 'n geïsoleerde groep vorm wat oor slegs sowat 250 vierkante myl voorkom. Die naaste bekende Borassus aan hierdie groep is 'n een-

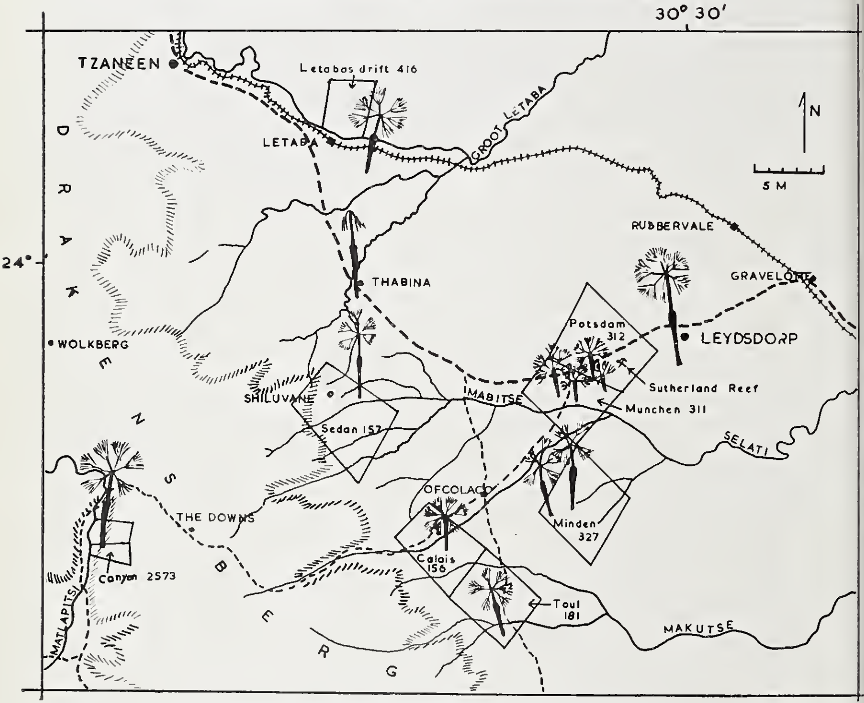


FIG. 1.—Kaart van die verspreiding van Borassus-palms in Noord-Transvaal in 1955.

FIG. 1.—Map showing the distribution of Borassus palms in Northern Transvaal in 1955.

THE BORASSUS PALM IN TRANSVAAL

by S. S. du Plessis

At Thabina, right next to the main road from Leydsdorp to Tzaneen, stands a remarkable dead tree trunk, the only remains of one of the most famous trees in Transvaal, Seluma, the rumbling palm. At the time of its death in 1954 this solitary 68 foot giant palm was an outstanding landmark in a sea of bushveld trees. Many tourists stopped here to marvel

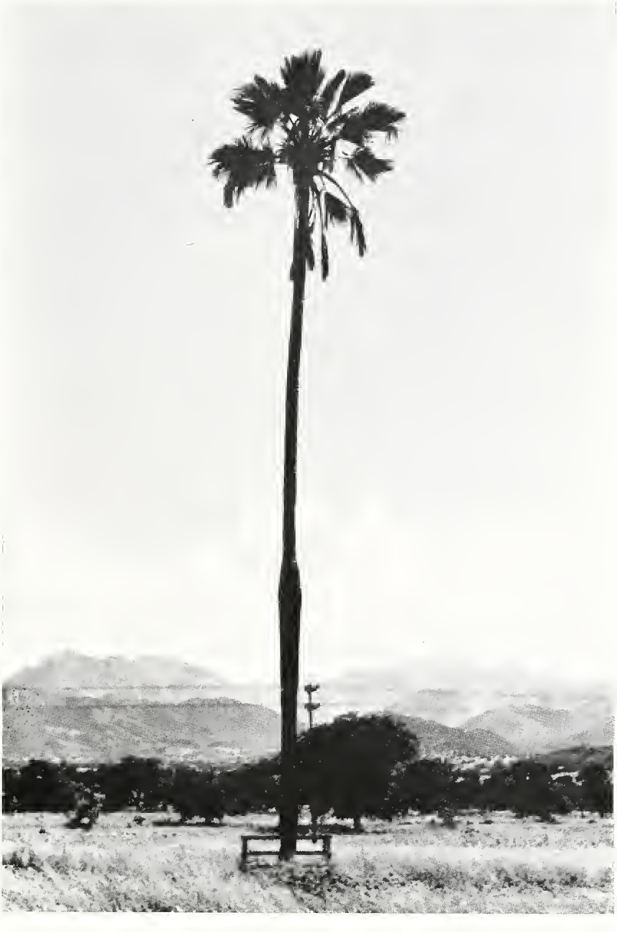


FIG. 2.—The famous old tree at Thabina before its death.

FIG. 2.—Die beroemde ou boom by Thabina voor sy dood.

same boom, wat ook nou dood is, by Machatuine en 'n ander ou boom naby Manhiça, albei in Suidelike Mosambiek. Uit hierdie eienaardige verspreiding en die voorkoms van verskeie eensame bome moet mens aflei dat die plant deur mense hierheen gebring is.

Die rekords van die palm in Transvaal dateer uit 1906 en maak melding van die bekende ou boom wat nou dood is by Thabina, een by Groot Letaba Drift en 'n paar by die Sutherland Reef Myn wat lank reeds gesluit is (Burt Davy se ongepubliseerde rekords 1906 soos gekwoteer deur Dyer 1952). Dyer (1952) meld ook 'n kolonie jong bome. In 1955 is daar in hierdie omgewing nege eensame palms aangetref, asook 'n groot kolonie jong bome tot 30 voet hoog. (Sien kaart.) Hierdie groep is oor ongeveer twee vierkante myl versprei. Dis interessant dat daar geen ou bome in die

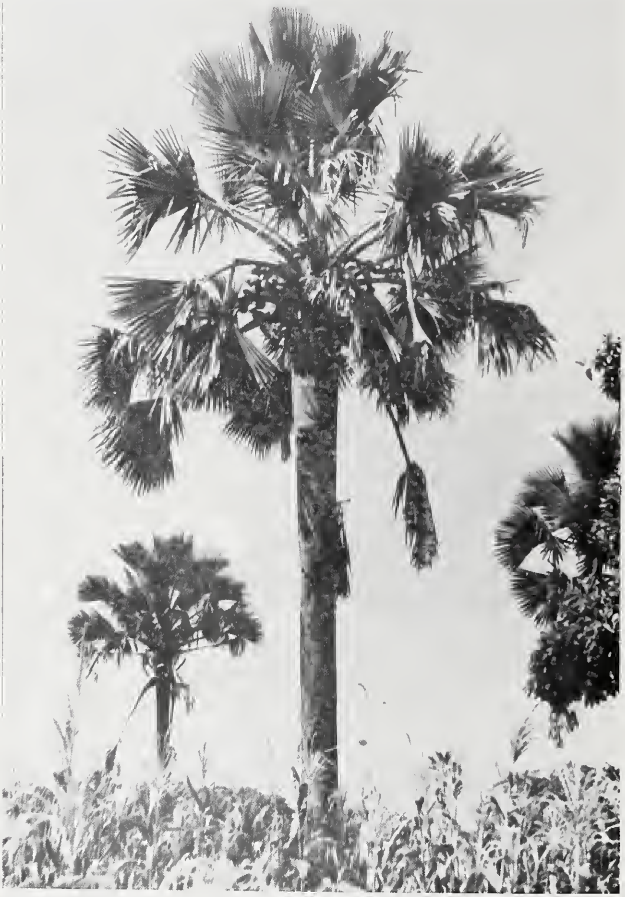


FIG. 3.—'n Jong geslagsryp vroulike boom met vrugte.

FIG. 3.—A young mature female tree with fruits.

at this strange tree with the swelling in the stem and the tremendous leaves through which the slightest breeze rumbled like a distant storm.

This palm (*Borassus flabellifer var. aethiopum*) is widely distributed in Central Africa and also occurs in India. Botanists are of the opinion that it is indigenous to Africa.

The presence of Borassus palms in Transvaal is interesting because they occur here as an isolated group spread over an area of only about 250 square miles. The nearest known Borassus to this group is a solitary tree, which is dead now, near Machatuine and another old tree at Manhiça, both in Southern Moçambique. This extraordinary distribution and the occurrence of various solitary trees leads to the conclusion that man introduced Borassus into Transvaal.

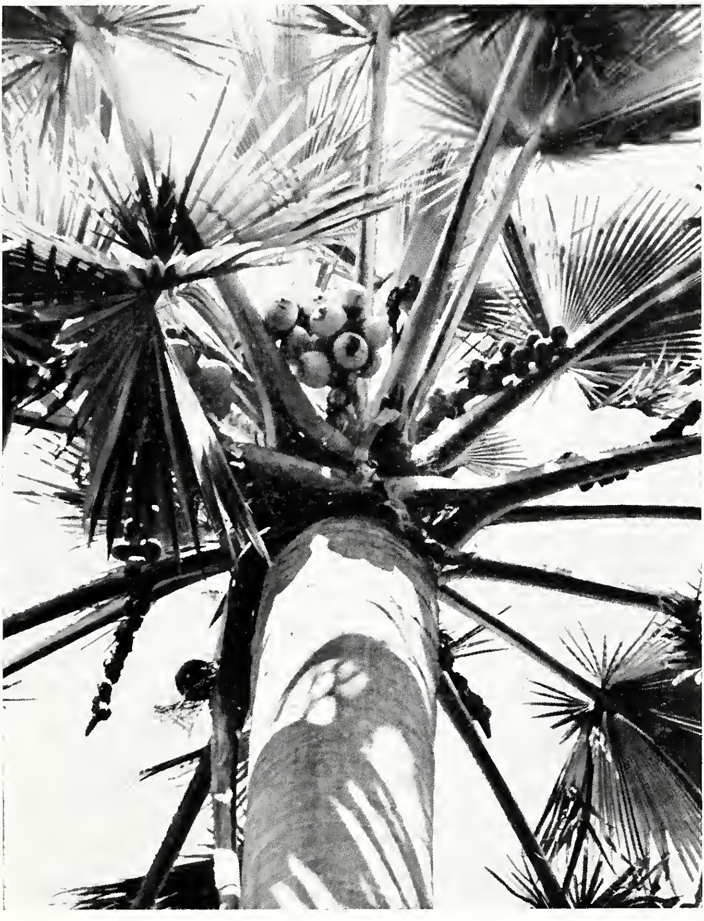


FIG. 4.—The fruits of Borassus. FIG. 4.—Die vrugte van Borassus.

kolonie opgemerk is nie, terwyl die eensame bome op één na almal ou bome is wat reeds ver bokant die verdikking in die stam uitgegroei het. Die grootste boom is 71 voet hoog en groei op die plaas Sedan No. 157 naby die Shiluvane-sendingstasie.

Die uitstaande kenmerk van die Borassus-palm is die eienaardige vorm van die stam. Van die grond af tot op 'n hoogte wat wissel van 16 tot 25 voet word die stam geleidelik dikker en dan skielik weer dunner. Die boonste gedeelte van die stam van ou bome is dan ook heelwat dunner as die onderste deel en dit lyk met die eerste oogopslag of daar 'n swelsel in die stam is. Kirk en Dyer is albei van mening dat die verdikking gevorm word sodra die plant geslagsryp word. In jong plante bly die stingels van die onderste dooie blare aan die stam sit maar min of meer wanneer die verdikking in die stam gevorm word, val die dooie blaarstengels af en laat 'n pragtige gladde stam. Die manlike en vroulike blomme word op aparte plante gedra en dit verklaar waarom die eensame palms nie voortplant nie, in teenstelling met die vinnige vermeerdering van die kolonie jong bome op die plaas Munchen No. 311. Dit is interessant dat, alhoewel die twee eensame bome ('n mannetjie en 'n wyfie) op Minden No. 327 minstens een myl van mekaar af groei, daar binne 'n halfmyl van die wyfie drie baie jong boompies staan. Mens moet dus aanneem dat bestuiwing oor so 'n afstand moontlik is. Hier kan dus mettertyd ook 'n kolonie van palms ontstaan.

Die oranjekleurige vrugte word aan lang trosse gedra min of meer soos piesangs. Die vrugte is ses duim in deursnit met 'n aangename skerp geur. Die drie sade van die vrug word omhul deur 'n dik veselige geel massa waaruit Naturelle in Sentraal-Afrika na bewering 'n alkoholiese drank maak. Die vrugte word in die laat somer ryp. Die manlike bloeiwyse bestaan uit 'n aantal vingervormige keëls 1 voet lank by 1¼ duim in deursnit. Jong geslagsryp bome het gewoonlik ongeveer 25 groot waaiervormige blare maar die getal neem met ouderdom af: die 59 voet hoë boom op Minden No. 327 het 19 blare terwyl die een op Sedan No. 157 (71 voet hoog) maar 16 blare het. Volgens mnr. Alec Hood van Ofcolaco maak die Palm-windswael (*Tachynautes parvus parvus*) in die eensame palm op die plaas Calais No. 156 nes. Dit is 'n interssante rekord aangesien hierdie voël oënskynlik onbekend is in Transvaal maar volgens Gill volop is in Lourenço Marques. Die klein koppievormige nessie word op 'n blaar gebou en bestaan uit vere wat deur die klewerige speeksel van die voël aanmekaar gebind word. Selfs die klein wit eiertjies word deur die speeksel in die nessie vasgeheg en 'n mens wonder wat word van die kleintjies as die wind deur die blare dreun! Die witborskraaie maak ook graag in die toppe van die palms nes.

Gelet op die skaarsheid en aanskoulikheid van die eensame palms, verbaas dit niemand as die Naturelle die bome met die bonatuurlike assosieer nie. Mohlaba het dan ook die doodstraf belowe aan die man wat die palm by Thabina sou beskadig. Die Naturelle het ook hul eie kenmerkende verklaring vir die dood van hierdie palm. Baie van die palms moet onder die Natural se byl deurloop want hulle gebruik dit vir medisyne. Gelukkig skil hulle net stukkies van die stam af en dit beskadig nie die boom nie.

Alhoewel die boom op Canyon No. 2573 soos die kraai vlieg maar dertien myl van die een op Sedan No. 157 staan, word dit van al die ander palms geskei deur die Drakensberg-reeks. Hierdie boom staan tussen

The records of this palm in Transvaal date back to 1906 and mention the well-known old tree (which is dead now) near Thabina, one at Groot Letaba Drift and a few near the Sutherland Reef Mine, which has since closed down. (Burt Davy's unpublished records 1906 as quoted by Dyer, 1952.) Dyer (1952) also mentions a colony of young trees. In 1955 nine solitary palms and a large colony of young trees up to 30 feet high were found in this area. (See map.) The colony covered an area of roughly two square miles. It is interesting to note that no old trees were noticed in the colony, whereas with the exception of one, all the solitary trees investigated are old and have grown far above the swelling in the stem. The tallest palm, which is 71 feet high, grows on the farm Sedan No. 157, near the Shiluvane Mission Station.

The shape of its stem is the outstanding characteristic of the Borassus palm. From the ground up to a height that varies from 16 to 25 feet the stem grows gradually thicker and then suddenly thinner again. The upper part of the stem of older trees is, therefore, much thinner than the lower part and at first glance it appears as if there is a swelling in the stem. Kirk and Dyer both expressed the view that the swelling is formed when the plant attains sexual maturity. It would perhaps be more correct to say that the stem grows thinner after sexual maturity has been attained. In young trees the leaf bases persist on the stem, but when the swelling forms they drop to leave a perfectly smooth stem. The male and female flowers are borne on separate plants and this explains why the solitary trees do not propagate, in contrast to the rapid increase of the colony of young trees. The two solitary palms on the farm Minden No. 327 are male and female and, although they are at least one mile apart with no other trees nearby, three very small palms were observed near the female tree. It must, therefore, be assumed that pollination is possible over this distance. Here a new colony of palms could be expected to form in the course of time.

The large orange-coloured fruits are borne in long bunches more or less like bananas. They are six inches in diameter with a sharp, pleasant smell. The three seeds are embedded in a fibrous yellow mass from which Natives of Central Africa are said to make an intoxicating drink. The fruits ripen in late summer. The male inflorescence consists of a bunch of long fingershaped cones one foot long and 1¼ inch in diameter. Young sexually mature trees carry about 25 huge fanshaped leaves but the number of leaves decrease with age; the 59 foot tree on Minden No. 327 has 19 leaves and the one on Sedan No. 157 (71 feet high) has only 16 left.

According to Mr. Alec Hood of Ofcolaco the Palm Swift (*Tachynautes parvus parvus*) was seen to nest in the solitary palm on the farm Calais No. 156. This is an interesting record because, whereas according to Gill this bird is plentiful in Lourenço Marques, it is apparently unknown in the Transvaal. The tiny cup-shaped nest is composed of feathers and salivary glue and is attached to the face of a palm leaf. The eggs are also glued to the nest with saliva and one wonders what happens to the young when the wind rumbles through the leaves. The Pied Crows (*Corvus albus*) also like to nest in the tops of the palms.

Considering the rarity and the striking appearance of the solitary palms it is not surprising that the Natives of that area associate these trees with the supernatural. Chief Mohlaba promised capital punishment to any person from his people who dared damage or cut the tree at Thabina. The Natives also have their own characteristic explanation for the death of this palm. Many of the palms carry scars from the Native axe on their

digte inheemse bome in die afgeleë vallei van die Matlapitsirivier. Elke jaar wanneer die mielies pitte vorm, word daar deur die Naturelle 'n fees gevier waarin hierdie boom 'n belangrike rol speel.

Ten spyte van sy aantreklike voorkoms is die sierlike Borassus nog nooit in openbare parke of privaat tuine in die laeveld opgemerk nie. Die saad ontkiem geredelik en een of 'n paar van hierdie bome sal waardigheid aan enige tuin of openbare park verleen.

Graag wil ek mnre. Alec Hood, Tommy Hayden en Jimmy Porter bedank vir waardevolle inligting wat hulle verstrek het.

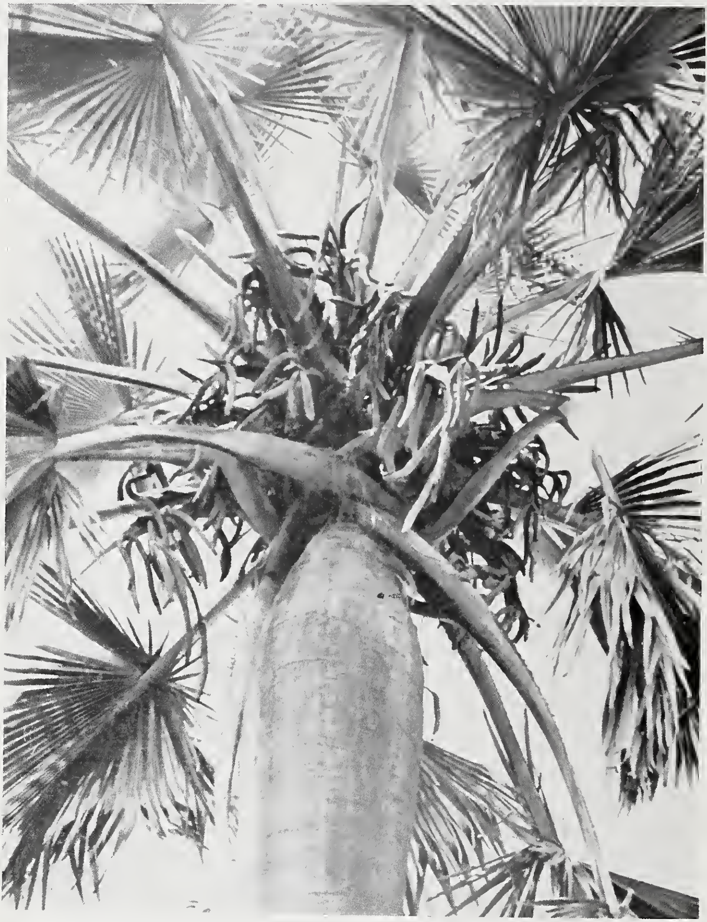


FIG. 5.—Die manlike bloeiwyse van Borassus.

FIG. 5.—The male inflorescence of Borassus.

stems because it is reputed to be good medicine. Fortunately they only peel off small pieces of the stem and it does not harm the tree.

Although the tree on Canyon No. 2573 is only 13 miles as the crow flies from the one on Sedan No. 157, the former tree is separated from all the other palms by the Drakensberg range. This tree grows amongst dense indigenous trees in the isolated valley of the Matlapitsi River. Every year when the young maize cobs start forming, the Natives of this valley hold a feast in which the palm tree plays an important part.

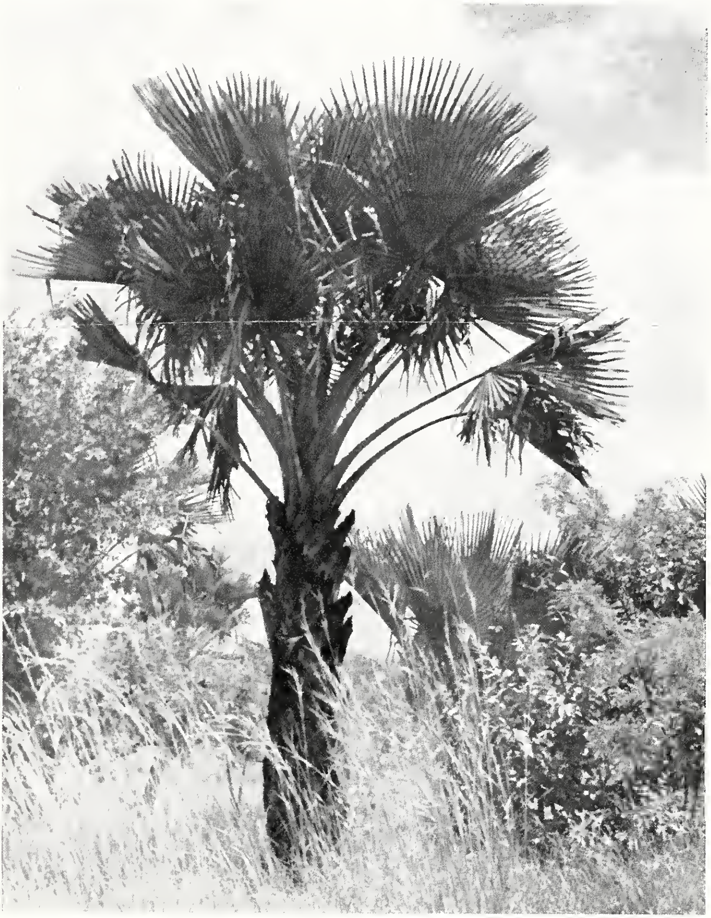


Fig. 6.—A young tree to show the persisting leaf bases.

Fig. 6.—'n Jong boompie waarvan die blaarstingels nog aan die stam vassit.

LYS VAN EENSAME PALMS.

	Lokaliteit.	*Geslag.*	*Opmerking.*
1.	By Thabina op die plaas Rita No. 412.	Manlik....	Dood in 1954 op hoogte van 68 voet. Hoogte van verdikking in stam 23 voet. Omtrek van stam op grondhoogte 6 voet 4 duim, op 5 voet van grondhoogte, 4 voet 6 duim.
2.	Sedan No. 157..........	Manlik....	Hoogte 71 voet. Hoogte van verdikking in stam 24 voet. Omtrek van stam op grondhoogte 7 voet. Omtrek van stam 5 voet van grond af, 4 voet 6 duim.
3.	Minden No. 327..........	Vroulik...	Hoogte 59 voet. Hoogte van verdikking 16 voet. Omtrek van stam op grondhoogte 5 voet 10 duim. Omtrek van stam 5 voet van grond, 4 voet. Drie klein boompies in die omgewing van hierdie boom.
4.	Minden No. 327.........	Manlik....	Nie gemeet nie maar hoogte geskat op 50 voet.
5.	Een myl Suid-Oos van Leydsdorp by Polisie se waterpomp.	Vroulik....	Hoogte 65 voet. Daar was een ontwikkelde vrug aan die boom.
6.	Ongeveer 2 myl Suid-Oos van Letaba-stasie in Mohlaba se Lokasie.	Vroulik....	Hoogte geskat op 45 voet.
7.	Calais No. 156..........	Manlik....	Jong boom ongeveer 25 voet hoog.
8.	Toul No. 181. (by Mnr. Olivier).	Onbekend.	Geen besonderhede beskikbaar nie.
9.	Canyon No. 2573. (Pietersburg distrik).	Vroulik....	Hoogte geskat op 50 voet.

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In spite of its attractive appearance, the graceful Borassus has never been noticed in public parks or private gardens in the Lowveld. The seed germinates readily and one or a group of trees will lend dignity to any garden.

I wish to thank Messrs. Alec Hood, Tommy Hayden and Jimmy Porter for valuable assistance in locating all the various solitary palms.

LIST OF SOLITARY PALMS.

	Locality.	*Sex.*	*Remarks.*
1.	At Thabina, next to the main road	Male......	This tree died in 1954 at a height of 68 feet. Height of the swelling in the stem 23 feet. Circumference of stem: at ground level 6 feet 4 inches; at 5 feet from ground level, 4 feet 6 inches.
2.	Sedan 157...............	Male......	Height 71 feet. Height of swelling in stem 24 feet. Circumference of stem at ground level, 7 feet. Circumference of stem 5 feet from ground level, 4 feet 6 inches.
3.	Minden 327..............	Female....	Height 59 feet. Height of swelling 16 feet. Circumference of stem at ground level, 5 feet 10 inches. Circumference of stem 5 feet from ground level, 4 feet. There were 3 small trees near this one.
4.	Minden 327..............	Male......	Not measured, but height estimated at 50 feet.
5.	One mile south of Leydsdorp at Police waterpump	Female....	Height 65 feet. It carried one developed fruit.
6.	Roughly 2 miles south-east of Letaba station in Mohlaba's location	Female....	Height estimated at 45 feet.
7.	Calais 156...............	Male......	Young tree approximately 25 feet high.
8.	Toul 181.................	Unknown..	No details available.
9.	Canyon 2573.............	Female....	Height estimated at 50 feet.

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DIE BONTEBOK *[Damaliscus pygargus* (Pall.)*]*, Met spesiale verwysing na sy geskiedenis en beskerming

deur R. Bigalke,

Direkteur van die Nasionale Dieretuin

GESKIEDENIS

DIE vroegste wetenskaplike beskrywing van die bontebok is dié van Pallas (1766) onder die naam *Antilope dorcas* (11, p. 6). In die daaropvolgende jaar het Pallas blykbaar besef dat hierdie antiloop nie 'n gasel (dorcas van Aelian; sien verw. 14, bl. 140) is nie en verander sodoende die soortnaam na die meer paslike *pygargus* (12, Band 1, bl. 10). Die Latynse woord *pygargus* beteken „wit oor die agterste liggaamsdele" (d.w.s. rondom die stert); dit het betrekking op die duidelike wit kol op die boude en rondom die stertwortel van die dier.

Die koloniste aan die Kaap het vroeg reeds met die bontebok in die huidige Caledon-distrik in aanraking gekom. So vind ons in Isaq Schrijver se Dagboek die volgende inskrywing gedateer 11 Januarie 1689 (10): „We left the said Swarte Revier (d.w.s. in die omgewing van die huidige stad Caledon) before sunrise and passed good land as before. On the way we saw more than 1,000 , bonte harte bokken ' running ".

Die Sweedse wetenskaplike en reisiger, Dr. A. Sparrman, meld dat in die jaar 1775 (16, bd. 1, bl. 129) „I made a trip to the warm baths (nou bekend as Caledon). . . . I now, for the first time, had the pleasure of seeing herds, consisting of the two largest sorts of *antilopes* or *gazels*, which are called by the Dutch *hartebeests* and *bunteboks*." Die daaropvolgende jaar (1776) verskaf hy die volgende besonderhede omtrent die verspreiding van die Bontebok (16, Bd. II, bl. 219): „The *bonte-bok* is not to be found any farther to the eastward of the Cape than *Zwellendam;* but a farmer who had been in the country of *Tambuki* informed me, that he had there again seen *bonte-boks,* though somewhat different from the beforementioned ". Waarskynlik was laasgenoemde nie bontebokke nie maar wel blesbokke, sodat ons hier te doen het met een van die eerste voorbeelde van verwarring tussen hierdie twee wildboksoorte.

W. Paterson wat gedurende die jare 1777-79 vier reise na die „country of the Hottentots and Caffraria" onderneem het, maak ook melding van die bontebok in sy boek (13, bl. 12): „October, 1777. After parting with our friend, we crossed the Bott Rivier, and about eight in the evening came to the Swart Berg, or Blackhill, where there is a warm bath (dit is die dorp nou bekend as Caledon) . . . We found several people here from the Cape, using the water of the bath, which they believe to be a specific in all cases. The country about is very pleasant; and there is excellent pasture for cattle. This district abounds in game; and particularly in that species of antelope called by the Dutch, Bonta Bok ".

Elders in sy boek skryf Paterson soos volg (13, bl. 21): „October, 1777. Towards the evening we left the road, and with some difficulty got to the Reed Valley. This place belongs to the Dutch company, and is

THE BONTEBOK *[Damaliscus pygargus* (Pall.)*]*, With special reference to its history and preservation

by R. Bigalke,

Director of the National Zoological Gardens

HISTORY

THE first scientific description of the Bontebok was given by P. S. Pallas in the year 1766 under the name *Antilope dorcas* (11, p. 6). But in the following year Pallas evidently realised that this antelope was not a gazelle (*dorcas of Aelian;* see ref. 14, p. 140) and changed its specific name to the more appropriate *pygargus* (12, Vol. 1, p. 10). The Latin word *pygargus* means "white on the hinder parts" (i.e. around the tail); it refers to the distinctive white patch on the buttocks, a patch that is continued around the root of the animal's tail.

The settlers at the Cape came into contact with the Bontebok at an early date in the District of Caledon. In *Isaq Schrijver's Journal* we read the following in the entry dated Tuesday, 11th January, 1689 (10): "We left the said Swarte Revier (that is to say near the present-day town of Caledon) before sunrise and passed good land as before. On the way we saw more than 1,000 'bonte harte bokken' running."

The Swedish scientist and traveller, Dr. A. Sparrman, says that in the year 1775 (16, Vol. I, p. 129) he "made a trip to the warm baths (now known as Caledon) . . . I now, for the first time, had the pleasure of seeing herds, consisting of the two largest sorts of *antilopes* or *gazels,* which are called by the Dutch *hartebeests* and *bunteboks*". In the following year (1776) he gives the following information about the animal's distribution (16, Vol. II, p. 219): "the *bonte-bok* is not to be found any farther to the eastward of the Cape than *Zwellendam;* but a farmer who had been in the country of *Tambuki* informed me, that he had there again seen *bonte-boks,* though somewhat different from the before-mentioned." It is probable that the latter were not the bontebok but the blesbok and that we here have one of the earliest instances of confusion between the two kinds of antelopes.

W. Paterson, who undertook four journeys into the "country of the Hottentots and Caffraria" in the years 1777, 1778 and 1779, also refers to the Bontebok in the following passages of his book (13, p. 12): "October, 1777. After parting with our friend, we crossed the Bott Rivier, and about eight in the evening came to the Swart Berg, or Blackhill, where there is a warm bath (this is the town now known as Caledon) . . . . We found several people here from the Cape, using the water of the bath, which they believe to be a specific in all cases. The country about is very pleasant; and there is excellent pasture for cattle. This district abounds in game; and particularly in that species of antelope called by the Dutch, Bonta Bock."

In another passage Paterson writes as follows (13, p. 21): "October, 1777. Towards the evening we left our road, and with some difficulty got to the Reed Valley. This place belongs to the Dutch company, and is

employed for breeding cattle; most of their draught oxen are reared here; it also produces wood. It is distant from Zwellendam about 12 miles, and from the Cape one hundred and twenty . . . During our stay, I added much to my collection, and amused myself by joining in the chase of the Bonta Bocks, which are found in this place in great numbers, as well as the Cape Dorcas of Linnaeus, and the Equus Zebra ".

VERSKILLE TUSSEN DIE BONTEBOK EN DIE BLESBOK

Wat die uitwendige voorkoms betref, lyk die bontebok en die blesbok baie eners. Voor ons verder gaan, is dit dus raadsaam om die hoofverskille tussen hierdie twee antiloopsoorte te behandel. Beide soorte behoort aan die Hartbeesgroep (Subfamilie *Alcelaphinae*), 'n antiloopgroep wat gekenmerk word deur (1) 'n lang smal kop, (2) 'n rug wat skerp daal vanaf die blaaie na die heupe, (3) nou spleetvormige neusgate aan die rant van die halfsirkelvormige rhinarium (dit is die kaal en gewoonlik klam velstrokie tussen die neusgate), (4) die aanwesigheid van horings by beide geslagte, en (5) die aanwesigheid van slegs twee tepels by die ooie.

Die belangrikste uitwendige verskille tussen die volwasse bontebok en die volwasse blesbok is die volgende: —

(*a*) **Bontebok** (*Damaliscus pygargus*)	(*b*) **Blesbok** (*D. albifrons*)
1. Die algemene liggaamskleur is 'n diep donkerbruin, donkerder aan die kante van die kop, die twee sye van die liggaam en die bodele van die ledemate. Die donkerder dele het 'n mooi purper glans.	Die algemene liggaamskleur is rooibruin sonder 'n purper glans.
2. Die wit bles op die gesig word gewoonlik nie deur 'n bruin dwarsstreep in twee verdeel nie maar toon wel 'n vernouing tussen die oë.	Die wit bles op die gesig word gewoonlik deur 'n smal bruin dwarsstreep tussen die oë in twee verdeel.
3. Die kol op die boude is helder wit en strek rondom die stertwortel. Die boonste oppervlak van die basale gedeelte van die stert is ook wit.	Oor die algemeen is die kol op die boude nie wit nie maar slegs ligter as die algemene liggaamskleur. Die basale gedeelte van die stert is wit of ligbruin.
4. Die ledemate is wit onderkant die knieë met uitsondering van 'n bruin streep aan die voorkante van die voorbene en soms ook 'n bruin vlek aan die voorkant van die agterbene net bokant die kloutjies.	Die buitenste oppervlaktes van beide voor- en agterbene is donkerbruin van kleur.
5. Die horings is gewoonlik swart aan die boonste oppervlaktes van die ringe.	Die boonste oppervlaktes van die horingringe is gewoonlik strooikleurig.

VROEËRE VERSPREIDING VAN DIE BONTEBOK EN VERWARRING TUSSEN DIE BONTEBOK EN DIE BLESBOK

Dit wil voorkom asof die verspreidingsgebied van die bontebok ten tye van die stigting van die volksplanting aan die Kaap in 1652 beperk was tot die strandveld ten ooste en ten weste van Kaap Agulhas.

employed for breeding cattle; most of their draught oxen are reared here; it also produces wood. It is distant from Zwellendam about 12 miles, and from the Cape one hundred and twenty. . . During our stay, I added much to my collection, and amused myself by joining in the chase of the Bonta Bocks, which are found in this place in great numbers, as well as the Cape Dorcas of Linnaeus, and the Equus Zebra.”

DIFFERENCES BETWEEN THE BONTEBOK AND THE BLESBOK

The Bontebok is very similar in outward appearance to the Blesbok. Before proceeding further, it is desirable to deal with the principal differences between the two kinds of antelopes. Both species belong to the Hartebeest group of antelopes (Subfamily *Alcelaphinae*) which are characterised (1) by the long narrow head, (2) by the fact that the back slopes more or less sharply from the withers to the haunches, (3) by the narrow slit-shaped nostrils along the edge of the semicircular rhinarium (i.e. the naked and generally moist area of skin between the nostrils), (4) by the presence of horns in both sexes and (5) by the presence of two teats in the females.

The principal external differences between the adult Bontebok and the adult Blesbok are as follows:—

(*a*) **Bontebok** (*Damaliscus pygargus*)	(*b*) **Blesbok** (*D. albifrons*)
1. The general body colour is a rich dark-brown, darker on the sides of the head, the sides of the body and the upper parts of the limbs. These darker parts have a nice purple gloss.	The general body colour is a reddish-brown without a purple gloss.
2. As a rule the white face blaze is not divided by a transverse brown band but is constricted between the eyes.	As a rule the white face blaze is divided by a narrow transverse brown band between the eyes.
3. The patch on the buttocks is pure white and the white extends around the root of the tail. The upper surface of the basal part of the tail is also white.	The patch on the buttocks is generally not white but merely paler than the body colour. The basal end of the tail is white or pale brown.
4. With the exception of a brown stripe on the front of the fore-limbs and sometimes also a brown patch on the front side of the hind-limbs just above the hoofs, the limbs are white from the knee downwards.	On the outer surface the fore and hind-limbs are dark-brown in colour.
5. The horns are usually black on the upper surface of the rings.	The horns are usually straw-coloured on the upper surface of the rings.

FORMER DISTRIBUTION OF THE BONTEBOK AND CONFUSION BETWEEN THE BONTEBOK AND THE BLESBOK

When the European settlement was started at the Cape in the year 1652, the range of the Bontebok seems to have been restricted to the sandveld east and west of Cape Agulhas.

Soos reeds gemeld, het Sparrman in 1775 die bontebok in die omgewing van die huidige Caledon, nie ver oos van die Botrivier nie aangetref. Hy meld verder dat die dier destyds nie verder oos as Swellendam voorgekom het nie.

Op 12 November 1773 vind Masson (8, bl. 287) die bontebok naby die Kafferkuilsrivier in die huidige Riversdal distrik.

Volgens Moodie (9, bl. 283) was die bontebok teen 1835 uitgedun tot 'n paar troppe wat beperk was tot die smal landstreek tussen die berge en die see enersyds en tussen die Breede- en Duivenhoekrivier andersyds.

In J. D. Albertyn se verslag oor die bewaring van die bontebok (5, bl. 11) verskyn daar die volgende stelling: „Further east, on the western side of the Breede River near Fort Beaufort, a herd of Bontebok was preserved by a large landowner, Mr. F. R. Myburgh . . . ". Dit is ongetwyfeld 'n fout en moet lees Port Beaufort, geleë aan die mond van die Breede-rivier.

Dit blyk dus dat die verspreidingsgebied van die bontebok ten tye van die volksplanting aan die Kaap beperk was tot die Suidwestelike Kaapse kusstrook. Die grense van sy verspreidingsgebied kan meer definitief as volg gedefineer word: die area ten ooste, ten weste en ten noorde van Kaap Agulhas begrens deur Mosselbaai in die ooste, die Botrivier in die weste en in die noorde deur die Sondereind- en Langeberge. Dit beslaan min of meer dieselfde gebied as Acocks se Renosterbosveld en Fynbos van die kusstreek (1, bls. 126 en 128). Eersgenoemde kom voor op die kleierige grond van die suidelike kusvlaktes terwyl die Fynbos voorkom op die sand en kalksteen langs die suidelike kusstrook.

Afgesien van die relatiewe skaarsheid van historiese verslae omtrent die verspreiding van die bontebok, word die vasstelling van die grense van sy eertydse verspreidingsgebied nog verder bemoeilik deurdat die bontebok en die blesbok van tyd tot tyd met mekaar verwar is.

Veral merkwaardig is die feit dat alhoewel Cornwallis Harris [soos vermeld deur Sclater (14, bl. 140)] die eerste persoon was om duidelik die verskille tussen die bontebok en die blesbok aan te toon, hy ook beweer het dat die bontebok in groot getalle op die vlaktes van die huidige Oranje-Vrystaat voorgekom het. Harris skryf soos volg (3, bl. 302): „As we gradually descended towards this stream of promise, which ultimately proved to be the ‚Gy Koup', or Vet riviere of the Emigrants—rising near the missionary station of Umpukani, and also a tributary of the Likwa—we passed over a low tract about eight or ten miles in extent, strongly impregnated with salt, and abounding in lakes and pools. The number of wild animals congregated on the swampy flat, almost realised fable . . .. At every step incredible herds of Bontebucks, Blesbucks, and Springbucks, with troops of Gnoos, and squadrons of the common, or stripeless, Quagga, were performing their complicated evolutions." Dat hy die twee wildboksoorte verwar het blyk nie alleen duidelik uit hierdie aanhaling nie, maar ook uit die volgende (3, bl. 308): „It (that is to say the Bontebok) was formerly common in the Cape Colony, and a few are even still preserved in the District of Swellendam . . . ".

Selous (15, bl. 176) stel die saak baie duidelik as volg: „The first Dutch settlers at the Cape of Good Hope met with a richly coloured species of antelope in the neighbourhood of Cape Agulhas which they named the bontebok—pied or variegated antelope—and it was more than 100 years

It has already been stated that in 1775 Sparrman found the Bontebok in the neighbourhood of the present-day Caledon not far east of the Bot River. He also states that at that time it was not found further eastwards of the Cape than Swellendam.

On the 12th November, 1773, Masson (8, p. 287) found the animal near the Kaffirkuils River in the present-day Division of Riversdale.

According to Moodie (9, p. 283), the Bontebok was reduced in the year 1835 to a few herds inhabiting a small tract of country between the mountains and the sea-coast and bounded by the Breede and the Duivenhoek River.

In J. D. Albertyn's account of the preservation of the bontebok (5, p. 11) the following statement occurs: "Further east, on the western side of the Breede River near Fort Beaufort, a herd of Bontebok was preserved by a large landowner, Mr. F. R. Myburgh. . . ." This is undoubtedly an error for Port Beaufort situated at the mouth of the Breede River.

It seems, therefore, that when the Cape was first settled, the distribution of the Bontebok was limited to the south-western coastal area of the Cape. The limits of its distribution may be more definitely defined as follows: The area to the east, west and north of Cape Agulhas bounded by Mossel Bay on the east, the Bot River on the west and the Sondereind and Langeberge Mountains on the north. It covers practically the same area as the Coastal Rhenosterbosveld and the Coastal Macchia veld types of Acocks (1, pp. 126 and 128). The former occurs on the south coastal plain and has a clayey soil, whereas the latter occurs on sand and limestone along the south coastal belt.

Apart from the comparative paucity of historical records about the distribution of the Bontebok, the determination of the limits of its distri-

'n Trop Bontebokke in die Nasionale Bontebokpark.
Foto van Nasionale Parkeraad.

A troop of Bontebokke in the Bontebok National Park.
Photo by the National Parks Board.

later that the very nearly allied species now known as the blesbok was first encountered on some high-lying open plains to the south of the Orange River in the present Colesberg Division of Cape Colony. These undoubted blesboks, were, however, at first called bonteboks, and the plains over which they once roamed are known as the , bontebok flats ' to this day. When the emigrant Boers crossed the Orange River in 1836 and trekked into the plains of what is now the Orange Free State, they met with immense herds of blesboks, but saw no bonteboks. They, however, confused the names of the two species, those who had some acquaintance with or knew something about the latter animal calling the new but nearly allied species by the old name, whilst the majority, who had never seen or heard of bonteboks, called the new species blesboks—from the broad white blaze down the face. Thus a confusion arose between the bontebok and the blesbok which there can be little doubt caused Cornwallis Harris to believe that both species were abundant to the north of the Orange River. It will be as well, however, to quote what he himself says on this subject. On page 88 of his magnificent work on the Game and Wild Animals of Southern Africa he writes: 'Until we had reached the headquarters of the bontebok in the heart of those great unexplored plains (of the interior of South Africa) whereon thousands upon thousands were seen and numbers daily slain, one small troop near Kapain and half a dozen stragglers at the foot of the Cashan Range (in the present, i.e. 1899, Magaliesberg District of the Transvaal) were all that occurred after the first specimens which we met with in the Chooi Desert (in Bechuanaland.' "

„ This means that when Harris met with blesboks for the first time in Bechuanaland he was told they were bonteboks, and he seems to have thought that all the blesboks he subsequently met with were bonteboks, until on his journey southwards through the plains lying between the Vaal and Orange Rivers he found that what he thought were bonteboks were called blesboks by many of the Dutch farmers. That at one time he was hopelessly confused between the two species his opening paragraph concerning the bontebok proves, I think, beyond a doubt. It reads as follows: 'Upon the ocean-like and untrodden prairies of the interior—those especially lying south of the Vaal River, of which large tracts are strongly impregnated with saline particles—the incredible numbers of the pied antelope (bontebok), *and of its still gayer congener* the blesbok, that are frequently congregated, etc.' "

„ As the bontebok is much more richly coloured than the blesbok, it seems inconceivable that Captain Harris could have written thus if he was then acquainted with both species. On his return to the Cape Colony he seems to have been still doubtful on the point, for he says he was then 'anxious to ascertain whether the animal rigorously protected in the neighbourhood of Cape Agulhas differed in any respect from that found in the interior, *as pretended by the Colonists* '."

Die mate waarin Harris die bontebok en die blesbok verwar het blyk ook duidelik uit die volgende aanhalings uit sy „ Portraits of the Game and Wild Animals " (4, bl. 87): „ Bontebok. Common in the interior, and still found in Zoëtendal's Valley near Cape L'Agulhas ". En dan weer (4, bl. 109) „ The Bontebok Flats, which furnish the subject of this singular landscape, would appear indebted for their nomenclature to the double fact of possessing within their wide limits neither a solitary antelope of the species referred to, nor one single square rood of level land . . . . ".

bution is made more difficult owing to the confusion that there has at various times between the Bontebok and the Blesbok.

It is a remarkable fact that although Cornwallis Harris [as mentioned by Sclater (14, p. 140)] was the first to point out clearly the difference between the Bontebok and the Blesbok, he also asserted that the Bontebok occurred in vast numbers on the plains of what is now the Orange Free State. Harris wrote as follows (3, p. 302): "As we gradually descended towards this stream of promise, which ultimately proved to be the 'Gy Koup', or Vet riviere of the Emigrants—rising near the missionary station of Umpukani, and also a tributary of the Likwa—we passed over a low tract about eight or ten miles in extent, strongly impregnated with salt, and abounding in lakes and pools. The number of wild animals congregated on this swampy flat, almost realised fable. . . . At every step incredible herds of Bontebucks, Blesbucks, and Springbucks, with troops of Gnoos, and squadrons of the common, or stripeless Quagga, were performing their complicated evolutions." That he did confuse the two kinds of antelopes is not only clear from this passage, but also from the following (3, p. 308): "It (that is to say the Bontebok) was formerly common in the Cape Colony, and a few are even still preserved in the District of Swellendam. . . . ."

Selous (15, p. 176) puts the matter lucidly as follows: "The first Dutch settlers at the Cape of Good Hope met with a richly coloured species of antelope in the neighbourhood of Cape Agulhas which they named the bontebok—pied or variegated antelope—and it was more than 100 years later that the very nearly allied species now known as the blesbok was first encountered on some high-lying open plains to the south of the Orange River in the present Colesberg Division of Cape Colony. These undoubted blesboks were, however, at first called bonteboks, and the plains over which they once roamed are known as the 'bontebok flats' to this day. When the emigrant Boers crossed the Orange River in 1836 and trekked into the plains of what is now the Orange Free State, they met with immense herds of blesboks, but saw no bonteboks. They, however, confused the names of the two species, those who had some acquaintance with or knew something about the latter animal calling the new but nearly allied species by the old name, whilst the majority, who had never seen or heard of bonteboks, called the new species blesboks—from the broad white blaze down the face. Thus a confusion arose between the bontebok and the blesbok which there can be little doubt caused Cornwallis Harris to believe that both species were abundant to the north of the Orange River. It will be as well, however, to quote what he himself says on this subject. On page 88 of his magnificent work on the Game and Wild Animals of Southern Africa he writes: 'Until we had reached the headquarters of the bontebok in the heart of those great unexplored plains (of the interior of South Africa) whereon thousands upon thousands were seen and numbers daily slain, one small troop near Kapain and half a dozen stragglers at the foot of the Cashan range (in the present, i.e. 1899, Magaliesberg District of the Transvaal) were all that occurred after the first specimens which we met with on the Chooi Desert (in Bechuanaland)."

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„ Leaving with our Hottentot attendants a sufficient supply of the munitions of war, to deter these free and easy visitors from any attempt upon the baggage, we again took the field, and being most fortunately rewarded with a brace of bouncing blesboks, were conveying their comely carcases to the spit, when we had . . .". "The next day was to be our last upon the flats, and the wind having by great good fortune shifted during the night, every height in succession was at peep of dawn crowned with gnoos and blesboks . . .". "My first introduction to this splendid Antelope (hy verwys hier na die blesbok) took place on the great plains of the Vaal River, where the pursuit of thronging legions led to a solitary pilgrimage, etc."

Alhoewel Harris in die laaste sin 'n prentjie skilder van die menigte blesbokke wat toendertyd in die huidige Oranje-Vrystaat voorgekom het, meld hy hier bo dat die bontebok „ common in the interior " was.

Die „ Bontebok Vlaktes " is ten suide van Cathcart geleë. Daar is geen twyfel dat die naam 'n verkeerde naam is nie en ontstaan het as gevolg van verwarring tussen die bontebok en die blesbok. Selous (15, bl. 179) skryf as volg oor hierdie vlaktes: „ I have also been assured by old colonists who knew the bontebok flats as far back as 1835, when they still swarmed with game, that the animals from which they received their name were not bonteboks but blesboks ".

ONDERSOORTSTATUS EN KRUIS-TELING

Verskeie skrywers het al beweer dat die bontebok en die blesbok moontlik nie aparte soorte is nie maar wel ondersoorte.

So skryf Lydekker: „ Whether the two animals should be regarded as races of one species, rather than distinct species, may be open to argument " (7, bl. 121).

Selous (15, bl. 179) vermeld dat een van die redes waarom hy dit as onmoontlik beskou „ that the bontebok and the blesbok could ever have co-existed in the same district is because the two species are so very closely allied that they would inevitably have interbred and become fused into one species more or less intermediate between the two very closely allied forms. There is not more difference between the bontebok and the blesbok than there is between the stripeless eland of South-Western Africa and the richly coloured striped form of the same species found all over South-East Africa ". En verder: „ It is not improbable, I think, that the blesbok ages ago once ranged right through Cape Colony down to the shores of the sea at Cape Agulhas, but that the gradual desiccation of the Karroo in the south-western portions of the Cape Colony—of which there is a good deal of evidence—or several years of continuous drought, caused the withdrawal of the species from those parched and waterless plains. Those which had reached the plains near Cape Agulhas, however, where there is plenty of water, could have had no reason to move, and thus a portion of the race would have become isolated, and, in course of time, differentiated from the original stock ".

FitzSimons (5, bl. 13) maak die meer definitiewe stelling dat „ the Bontebok no doubt was formerly a local variety of the Blesbok, which owing to the nature of its environment has diverged so considerably in its markings from its progenitors that naturalists were justified in making a distinct species of it ".

called blesboks by many of the Dutch farmers. That at one time he was hopelessly confused between the two species his opening paragraph concerning the bontebok proves, I think, beyond a doubt. It reads as follows: 'Upon the ocean-like and untrodden prairies of the interior—those especially lying south of the Vaal River, of which large tracts are strongly impregnated with saline particles—the incredible numbers of the pied antelope (bontebok), *and of its still gayer congener* the blesbok, that are frequently congregated, etc.' "

"As the bontebok is much more richly coloured than the blesbok, it seems inconceivable that Captain Harris could have written thus if he was then acquainted with both species. On his return to the Cape Colony he seems to have been still doubtful on the point, for he says he was then 'anxious to ascertain whether the animal rigorously protected in the neighbourhood of Cape Agulhas differed in any respect from that found in the interior *as pretended by the Colonists*'."

The extent of Harris's confusion between the Bontebok and the Blesbok is clear also from the following extracts from his "Portraits of the Game and Wild Animals" (4, p. 87): "Bontebok. Common in the interior, and still found in Zoëtendal's Valley near Cape L'Agulhas." And again (4, p. 109) "The Bontebok Flats, which furnish the subject of this singular landscape, would appear indebted for their nomenclature to the double fact of possessing within their wide limits neither a solitary antelope of the species referred to, nor one single square rood of level land . . ." "Leaving with our Hottentot attendants a sufficient supply of the munitions of war, to deter these free and easy visitors from any attempt upon the baggage, we again took the field, and being most fortunately rewarded with a brace of bouncing blesboks, were conveying their comely carcases to the spit, when we had . . ." "The next day was to be our last upon the flats, and the wind having by great good fortune shifted during the night, every height in succession was at peep of dawn crowned with gnoos and blesboks . . ." "My first introduction to this splendid antelope (he is referring to the blesbok) took place on the great plains of the Vaal River, where the pursuit of thronging legions led to a solitary pilgrimage, etc."

In the last sentence Harris gives a picture of the abundance of the Blesbok at that time in what is now the Orange Free State, but above he says that the Bontebok is "common in the interior".

The "Bontebok Flats" lie to the south of Cathcart. There is no doubt that the name is a misnomer and has arisen from confusion between the Bontebok and Blesbok. Selous (15, p. 179) says the following about these Flats: "I have also been assured by old colonists who knew the Bontebok Flats as far back as 1835, when they still swarmed with game, that the animals from which they received their name were not bonteboks but blesboks."

SUBSPECIFIC STATUS AND HYBRIDIZATION

Various writers have suggested that the Bontebok and the Blesbok may not be different species but subspecies.

Lydekker writes thus: "Whether the two animals should be regarded as races of one species, rather than distinct species, may be open to argument" (7, p. 121).

Selous (15, p. 179) states that one reason why he considers it impossible "that the bontebok and the blesbok could ever have co-existed in the

In die verslag van mnr. J. D. Albertyn oor die bewaring van die bontebok (5, bl. 11) lees ons as volg: „a herd of about fifteen Bontebok and Blesbok mixed are flourishing and interbreeding ". En later weer (5, bl. 13) „ I am now crossing at Pattenberg (Potteberg; sien onder) the Bontebok of the south with the Blesbok of the Free State, and the first result was a female ".

FitzSimons (5, bl. 14) skryf dat „the Bontebok interbreeds freely with the Blesbok, and the progeny are fertile ". Voordat kruisteelt egter op 'n wetenskaplike basis uitgevoer is, kan ons op hierdie stadium slegs sê dat verbastering tussen die bontebok en die blesbok waarskynlik is. Indien die twee soorte onderling vrugbaar blyk te wees en die nageslag is ook onderling vrugbaar, dan sal dit heeltemal geregverdig wees om hierdie twee wildboksoorte as ondersoorte van dieselfde soort te klassifiseer.

BESKERMING EN HERDISTRIBUSIE

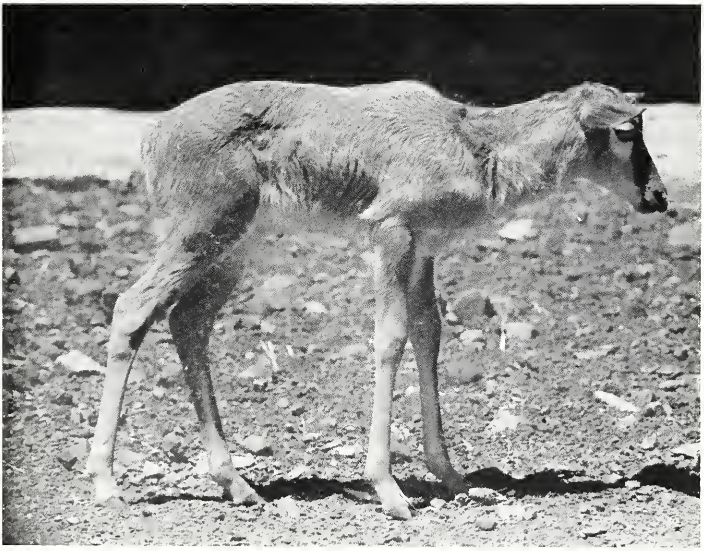
Die beskerming van die bontebok deur individuele grondeienaars in die omgewing van Bredasdorp het betreklik vroeg in ons land se geskiedenis begin. So skryf Bryden (2, bl. 277) in 1897 dat die klein groepie wat destyds in die omgewing van Kaap Agulhas voorgekom het sedert 1830 streng beskerm is deur die families van Breda en van der Byl.

In die jaar 1920 verstrek FitzSimons (5, bl. 9) die volgende verslag van mnr. J. D. Albertyn oor die stappe wat gedoen is om die bontebok te beskerm: „The Bontebok is one of an old family of antelopes known to exist in large herds on the coastal parts of what is now the Swellendam Division in the early days when the first European settlers came to these parts. But, like most other big game, this species of antelope has been ruthlessly slaughtered by unscrupulous huntsmen. If it had not been for the foresight and love of preservation of the South African fauna of a few worthy landed proprietors, whose names I will mention further on, who came to settle in what they then called Overberg, it is quite evident that the beautiful Bontebok, so much admired to-day by lovers of game animals, would have belonged to the list of extinct antelopes. In the year 1837 Mr. Alexander van der Byl, the then proprietor of 'Nacht Wacht', seeing that the Bontebok was becoming a fast disappearing species, constructed a large camp of some 6,000 acres on the western side of the Kars River, partly with galvanised wire and iron standards, and partly with a stone wall; and on the eastern side the water of the Kars river formed a natural boundary, and in this enclosure he succeeded in preserving some twenty-seven Bonteboks which gradually increased and diminished again in time of severe droughts, to which South Africa is so frequently subjected. The original twenty-seven antelopes have increased to 180, still in existence, and carefully preserved by the present owner of the farm. The example of Mr. van der Byl to preserve the Bontebok was soon followed by the adjoining proprietor of Zeekoe Vley, who, although he did not go to the extent of expenses as his more well-to-do and progressive neighbour to fence in his Bontebok, found out that he could do much good by proclaiming a sanctuary on which he so strictly preserved them, that he could not be moved to part from his severe resolution to favour the son of his beloved sovereign (Queen Victoria) to have a shot at the Bontebok on his preserve; and His Royal Highness the Duke of Edinburgh had to confine his sport amongst the Bontebok of his host, Mr. van der Byl of 'Nacht Wacht'. Further east, on the western side of the Breede River near Port Beaufort (sien

same district is because the two species are so very closely allied that they would inevitably have interbred and become fused into one species more or less intermediate between the two very closely allied forms. There is not more difference between the bontebok and the blesbok than there is between the stripeless eland of South-Western Africa and the richly coloured striped form of the same species found all over South-East Africa". And again: "It is not improbable, I think, that the blesbok ages ago once ranged right through Cape Colony down to the shores of the sea at Cape Agulhas, but that the gradual desiccation of the Karroo in the south-western portions of the Cape Colony—of which there is a good deal of evidence—or several years of continuous drought, caused the withdrawal of the species from those parched and waterless plains. Those which had reached the plains near Cape Agulhas, however, where there is plenty of water, would have had no reason to move, and thus a portion of the race would have become isolated, and, in course of time, differentiated from the the original stock."

FitzSimons (5, p. 13) states more categorically that "the Bontebok no doubt was formerly a local variety of the Blesbok, which owing to the nature of its environment has diverged so considerably in its markings from its progenitors that naturalists were justified in making a distinct species of it".

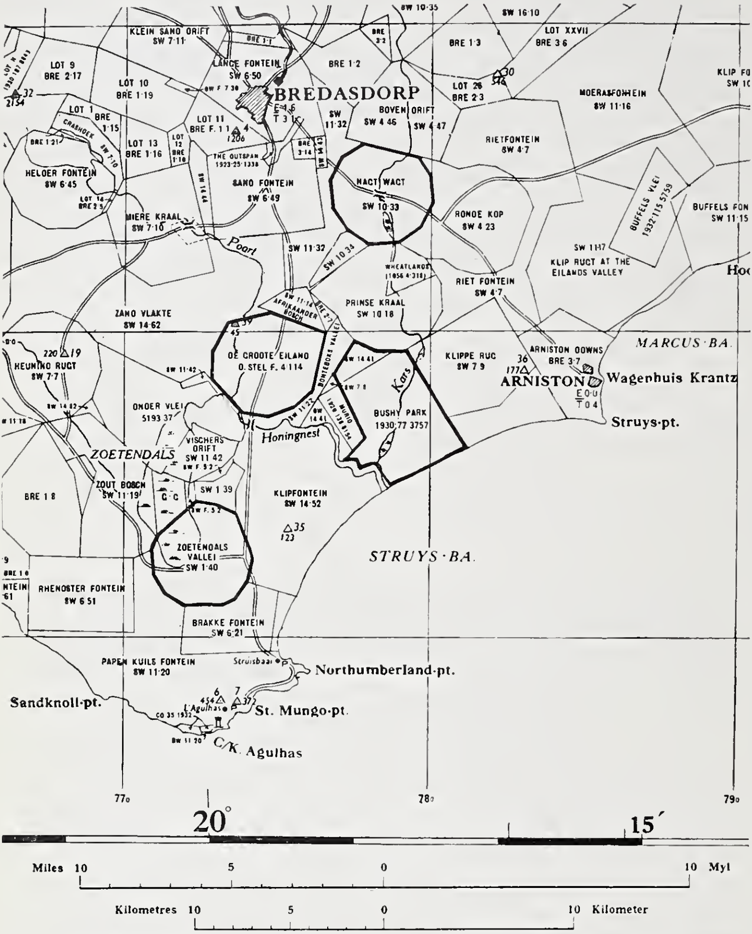
In Mr. J. D. Albertyn's account of the preservation of the Bontebok (5, p. 11) we read the following: "a herd of about fifteen Bontebok and Blesbok mixed are flourishing and interbreeding." And again (5, p. 13)



FOTO/PHOTO: Dick Wolff.

A male Bontebok lamb. Born in the National Zoological Gardens on the 5th October, 1945, and photographed on the 18th October, 1945.

'n Klein Bonteboklam. Gebore in die Nasionale Dieretuin op 5 Oktober 1945 en gefotografeer op 18 Oktober 1945.



Kaart van die gebied rondom Bredasdorp om die volgende plase, wat 'n rol gespeel het by die bewaring van die bontebok, aan te dui: Nagt Wagt (SW.10.33), De Groote Eiland (O. Stel F.4.114) ook bekend as Zeekoe Gat of Zeekoevlei, Zoetendals Vallei (SW.1.40) en Bushy Park (1930-77-3757).
Die plaas Vogel Gezang is saam met ander plase opgeneem in die plaas Bushy Park. Quarrie Bos, die noordelike gedeelte van Bushy Park, het op 3 Julie 1931 die Nasionale Bontebokpark geword.
('n Deel van topo-kadastrale Kaart No. 49.)

Map of the area around Bredasdorp showing the following farms that played a part in the preservation of the Bontebok: Nagt Wagt (SW.10.33), De Groote Eiland (O. Stel F.4 114) also known as Zeekoe Gat or Zeekoevlei, Zoetendals Vallei (SW. 1.40) and Bushy Park (1930-77-3757).
The farm Vogel Gezang has been absorbed with other properties into the farm Bushy Park. Quarrie Bos, the northern part of Bushy Park, became the "Bontebok National Park" on the 3rd July, 1931.
(Section of Topo-cadastral Sheet No. 49.)

"I am now crossing at Pattenberg (Potteberg; see below) the Bontebok of the south with the Blesbok of the Free State, and the first result was a female ".

FitzSimons writes (5, p. 14) that " the Bontebok interbreeds freely with the Blesbok, and the progeny are fertile ". But until interbreeding has been done on a scientific basis, all that can be said at this stage is that hybridization between the Bontebok and Blesbok is probable. If the two kinds prove to be fertile and the progeny are also fertile *inter se*, it will be fully justifiable to classify the Bontebok and the Blesbok as subspecies of one species.

PRESERVATION AND REDISTRIBUTION.

The preservation of the Bontebok by individual landowners in the neighbourhood of Bredasdorp was started at a fairly early date in our history. Thus Bryden (2, p. 277) wrote in 1897 that the small band of Bontebokke still surviving near .Cape Agulhas at that time was strictly preserved by the Van Breda and Van der Byl families since the year 1830.

In the year 1920 FitzSimons (5, p. 9) gave the following account by Mr. J. D. Albertyn of the steps taken to preserve the Bontebok: "The Bontebok is one of an old family of antelopes known to exist in large herds on the coastal parts of what is now the Swellendam Division in the early days when the first European settlers came to these parts. But, like most other big game, this species of antelope has been ruthlessly slaughtered by unscrupulous huntsmen. If it had not been for the foresight and love of preservation of the South African fauna of a few worthy landed proprietors, whose names I will mention further on, who came to settle in what they then called Overberg, it is quite evident that the beautiful Bontebok, so much admired to-day by lovers of game animals, would have belonged to the list of extinct antelopes. In the year 1837 Mr. Alexander van der Byl, the then proprietor of 'Nacht Wacht', seeing that the Bontebok was fast becoming a fast disappearing species, constructed a large camp of some 6,000 acres on the western side of the Kars River, partly with galvanised wire and iron standards, and partly with a stone wall; and on the eastern side the water of the Kars River formed a natural boundary, and in this enclosure he succeeded in preserving some twenty-seven Bonteboks which gradually increased and diminished again in times of severe droughts, to which South Africa is so frequently subjected. The original twenty-seven antelopes have increased to 180, still in existence, and carefully preserved by the present owner of the farm. The example of Mr. van der Byl to preserve the Bontebok was soon followed by the adjoining proprietor of Zeekoe Vley, who, although he did not go to the extent of expenses as his more well-to-do and progressive neighbour to fence in his Bontebok, found out that he could do much good by proclaiming a sanctuary on which he so strictly preserved them, that he could not be moved to part from his severe resolution to favour the son of his beloved sovereign (Queen Victoria) to have a shot at the Bontebok on his preserve; and His Royal Highness the Duke of Edinburgh had to confine his sport amongst the Bontebok of his host, Mr. van der Byl of 'Nacht Wacht'. Further east, on the western side of the Breede River near Port Beaufort (see above) a herd of Bontebok was preserved by a large landowner, Mr. F. R. Myburgh, but after his death some twenty years ago, his ground was sold to different people who evidently did not in a like sense appreciate the care of the former owner, and the herd soon dwindled down, and I believe to-day less than a dozen are the sum total

hierbo), a herd of Bontebok was preserved by a large landowner, Mr. F. R. Myburgh, but after his death some twenty years ago, his ground was sold to different people who evidently did not in a like sense appreciate the care of the former owner, and the herd soon dwindled down, and I believe today less than a dozen are the sum total which mark the herd so carefully preserved by Mr. Myburgh near Port Beaufort, so that practically all the Bontebok still in existence in their natural state are some 140 on the farm 'Nacht Wacht' owned by me, and 120 on the adjoining farm owned by Mr. P. K. Albertyn; twenty to thirty on the farm 'Vogel Gezang', joining Zeekoe Vley, belonging to Messrs. Myburgh Bros.; a few strayed buck on Zoetendale Vley, belonging to Mr. H. van Breda, and on the farm Pattenberg, where the late Mr. Andrew Ohlsson with his great love for preserving South African game has started a small herd which have since been added to by me (the now proprietor of Pattenberg); and a herd of about fifteen Bontebok and Blesbok mixed are flourishing and interbreeding."

Daar is ongelukkig 'n paar teenstrydighede in hierdie verslag wat ongetwyfeld daaraan toegeskryf moet word dat dit geskryf is lank nadat die gebeurtenisse plaasgevind het. In 'n brief gedateer 3 Mei 1947 verwittig die Landmeter-generaal van die Kaapprovinsie my dat die plaas Nagt Wagt (SW. Q10-33) op 30 April 1833 aan Pieter Vontelyn van der Byl toegeken is. Na laasgenoemde se dood is die plaas op 16 April 1875 aan sy seun Alexander van der Byl oorgedra. As daar dus sover terug as 1837 spesiale maatreëls vir die beskerming van die bontebok op hierdie plaas getref is, wil dit voorkom asof P. V. van der Byl daarvoor verantwoordelik moes gewees het.

Gedurende die jare 1902-1905 het mnr. Anders Ohlsson (nie mnr. Andrew Ohlsson soos in bogenoemde verslag vermeld nie) die eienaar geword van 'n groot blok plase aan die Indiese Oseaan, wat gestrek het vanaf die mond van die Breederivier verby Kaap Infanta in die rigting van Martha-punt. Hierdie veertien plase met 'n totale oppervlakte van 31,572 morge is in 1912, as gevolg van 'n heropmeting, verenig. Die oorspronklike name en kaarte is gekanselleer en die landgoed van wyle Anders Ohlsson is op 30 Oktober 1912 voorsien van 'n nuwe eiendomsbrief wat al veertien plase onder 'n enkele naam en kaart saamgevoeg het. Die naam „The Potteberg Estates" is aan hierdie saamgestelde plaas gegee. Die naam „Pattenberg" in bogenoemde verslag vermeld is dus verkeerd. Johan David Albertyn het op 10 Junie 1916 die eienaar geword van 'n gedeelte van die landgoed bekend as Potteberg A (7,767 morge), en dit het sy eiendom gebly tot 24 Desember 1940 (Landmeter-generaal van die Kaap die Goeie Hoop in 'n brief gedateer 8 Desember 1953).

Die plaas „Vogel Gezang" is op 'n later datum met ander plase verenig tot 'n enkele plaas bekend as Bushy Park.

Toe Harris gedurende die jare 1836 en 1837 in Suid-Afrika was, het hy berig dat daar nog 'n paar bontebokke bewaar gebly het in „the District of Zwellendam, through the potent influence of a penalty of Rix-dollars five hundred (i.e. £37. 10s. 0d.), which has been attached to the destruction of a specimen without especial licence from the Government" (4, bl. 90).

Selous gee die volgende beskrywing oor die beskerming van die Bontebok in sy boek, „Great and Small Game of Africa" (15, bl. 182): „In spite of stringent laws, however, there can be no doubt that many bonte-

which mark the herd so carefully preserved by Mr. Myburgh near Port Beaufort, so that practically all the Bontebok still in existence in their natural state are some 140 on the farm 'Nacht Wacht' owned by me, and 120 on the adoining farm owned by Mr. P. K. Albertyn; twenty to thirty on the farm 'Vogel Gezang', joining Zeekoe Vley, belonging to Messrs. Myburgh Bros.; a few strayed buck on Zoetendale Vley, belonging to Mr. van Breda, and on the farm Pattenberg, where the late Mr. Andrew Ohlsson with his great love for preserving South African game has started a small herd which have since been added to by me (the now proprietor of Pattenberg); and a herd of about fifteen Bontebok and Blesbok mixed are flourishing and interbreeding." '

Unfortunately there are some discrepancies in this account due, no doubt, to the fact that it was written long after the events took place. The Surveyor-General of the Cape of Good Hope has informed me (in litt., dated 3rd May, 1947) that the farm Nagt Wagt (SW. Q. 10-33) was granted to Pieter Vontelyn van der Byl on the 30th April, 1833. After the latter's death, the farm was transferred to his son, Alexander van der Byl, on the 16th April, 1875. If, therefore, special measures to protect the Bontebok on that farm were taken as far back as the year 1837, it would seem that P. V. van der Byl was responsible for those measures.

During the years 1902 to 1905 a large block of farms along the Indian Ocean extending from the Breede River mouth westwards past Cape Infanta towards Martha Point came under the ownership of Mr. Anders Ohlsson (not Andrew Ohlsson as stated in the above account). These fourteen farms totalling 31,572 morgen were consolidated as a result of a resurvey in 1912. The original titles and diagrams were cancelled and the estate of the late Anders Ohlsson was issued with a fresh title deed combining all fourteen farms under a single diagram and title on the 30th October, 1912. The name given to this consolidated farm was "The Potteberg Estates". The name "Pattenberg" given in the above account is, therefore, erroneous. On the 10th June, 1916, Johan David Albertyn became the owner of a subdivision called Potteberg A (7,767) morgen), and he held this until the 24th December, 1940 (Surveyor-General of the Cape of Good Hope in litt., dated 8th December, 1953).

The farm "Vogel Gezang" was at a later date combined with other farms into one farm called Bushy Park.

When Harris was in South Africa in the years 1836 and 1837, he reported that a few Bontebokke were still preserved in "the District of Zwellendam, through the potent influence of a penalty of Rix-dollars five hundred (i.e. £37. 10s.), which has been attached to the destruction of a specimen without especial license from the Government" (4, p. 90).

Selous gives the following account of the preservation of the Bontebok in the book "Great and Small Game of Africa" (15, p. 182): "In spite of stringent laws, however, there can be no doubt that many bonteboks were annually killed, and, had it not been for Mr. Alexander van der Byl, this fine animal, one of the most strange and characteristic of all South African antelopes, would probably ere now have vanished from the face of the earth. In 1864, however, this gentleman, whilst engaged in enclosing with a wire fence his far-extending domain, known as Nachtwacht Farm, near Bredasdorp, conceived the idea of driving all the bontebok on the the neighbouring plain, within the enclosure. Circumstances favoured

boks were annually killed, and, had it not been for Mr. Alexander van der Byl, this fine animal, one of the most strange and characteristic of all South African antelopes, would probably ere now have vanished from the face of the earth. In 1864, however, this gentleman, whilst engaged in enclosing with a wire fence his far-extending domain, known as Nachtwacht Farm, near Bredasdorp, conceived the idea of driving all the bontebok on the neighbouring plain, within the enclosure. Circumstances favoured him, and he was able, by a piece of good fortune, to drive the greater number of all the bonteboks still left alive into his own ground, within the enclosure. He puts the number that were thus secured at something like 300, and his nephews believe that there has been but little increase or decrease in their number since that time. I may not have seen all the bonteboks at Nachtwacht, but it certainly did not appear to me that there were anything like 300 of these animals on the enclosed ground at the date of my visit in 1895, and again in 1896. Mr. van der Byl's good example was followed by one of his neighbours, Dr. Albertyn, who also has now a small herd of bonteboks on his enclosed farm. Besides these carefully protected herds, there are a few still surviving on the plain, outside the enclosed farms, both in the neighbourhood of Bredasdorp, and near the village of Swellendam. Altogether, I doubt very much whether more than 300 of these animals are still in existence."

Selous krediteer mnr. Alexander van der Byl vir die stappe wat in 1864 geneem is om die bontebok te beskerm. Die plaas Nagt Wagt is egter eers elf jaar later, tewete op 16 April 1875 oorgedra aan Mnr. P. V. van der Byl se seun Alexander. Daar is egter geen rede om Selous se stelling in twyfel te trek nie, aangesien dit die algemene gebruik in Suid-Afrika is dat 'n seun op sy vader se plaas boer nog voor dit op die seun se naam oorgeplaas word.

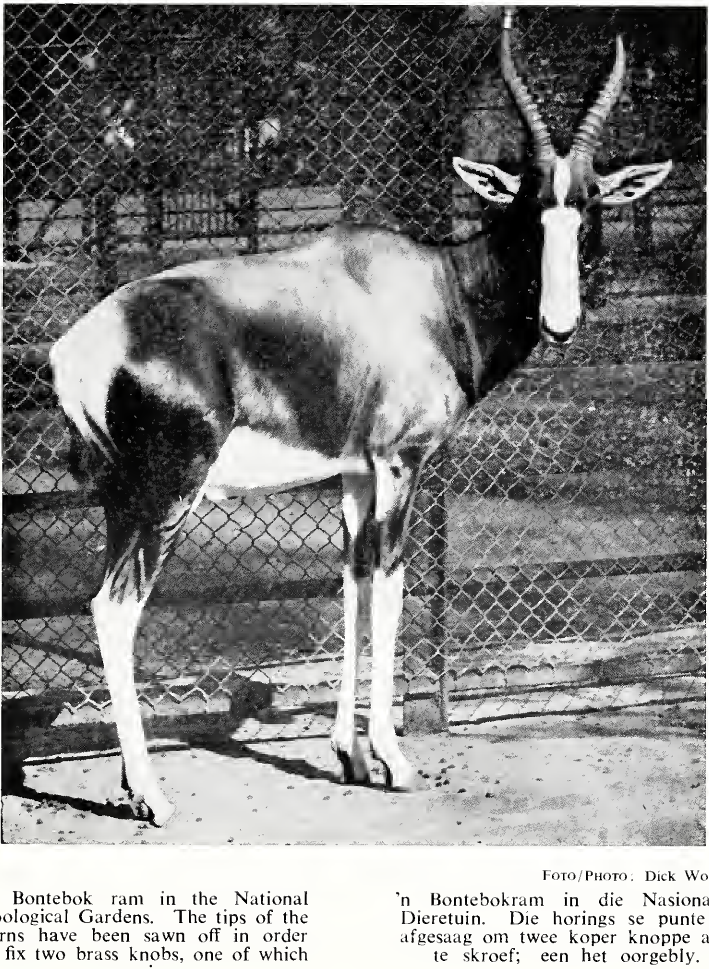
Volgens Lang (6, bl. 244) was daar in 1927 nog 77 bontebokke op drie plase in die Bredasdorp-distrik en 44 op vier plase in die omgewing van Swellendam. Dit was dus duidelik dat hierdie dier op 'n nasionale grondslag beskerm moes word om sy voortbestaan te verseker.

In die jaar 1930 het die Unie-regering die noordelike gedeelte van die plaas Bushy Park bekend as Quarrie Bos, 17 myl ten suide van Bredasdorp, aangekoop met die uitsluitlike doel om die bontebok te beskerm, en op 3 Julie 1931 het Quarrie Bos die „ Nasionale Bontebokpark " geword; sy totale oppervlakte is 843·101 morge (1,784·5 acres).

Die Nasionale Bontebokpark is van 'n sterk en hoë heining voorsien, die drade waarvan so na aan mekaar is dat die bokke nie kan uitkom nie. Die park het by sy stigting slegs 22 bontebokke gehad maar hulle het so vinnig vermeerder dat die Nasionale Parkeraad maatreëls moes tref om die getalle te beperk. In die jaar 1940 is die eerste bokke gevang nadat 'n spesiale vangkraal in die park gebou is. Bontebokke is aan die volgende persone verskaf (Jaarverslag van die Nasionale Parkeraad, 1940):—

	Ramme.	*Ooie.*
F. W. M. Bowker, Thornkloof, Grahamstad	2	5
P. K. Albertyn, Jnr., Riverside	2	7
D. C. Myburgh, Vogel Gezang	2	1
Nasionale Dieretuin, Pretoria	1	2
J. N. Swart	1	1

him, and he was able by a piece of good fortune, to drive the greater number of all the bonteboks still left alive into his own ground, within the enclosure. He puts the number that were thus secured at something like 300, and his nephews believe that there has been but little increase or decrease in their number since that time. I may not have seen all the bonteboks at Nachtwacht, but it certainly did not appear to me that there were anything like 300 of these animals on the enclosed ground at the date of my visit in 1895, and again in 1896. Mr. van der Byl's good example was followed by one of his neighbours, Dr. Albertyn, who also has now a small herd of bonteboks on his enclosed farm. Besides these carefully protected herds, there are a few still surviving on the plain, outside the enclosed



FOTO/PHOTO: Dick Wolff.

A Bontebok ram in the National Zoological Gardens. The tips of the horns have been sawn off in order to fix two brass knobs, one of which remains.

'n Bontebokram in die Nasionale Dieretuin. Die horings se punte is afgesaag om twee koper knoppe aan te skroef; een het oorgebly.

Van die sewe bokke wat aan mnr. F. W. M. Bowker uitgereik is, het vyf in lewe gebly (in 'n brief gedateer 13 Desember 1953). Teen November 1947 het hierdie bokke vermeerder tot 51 (Jaarverslag van die Nasionale Parkeraad, 1947), en in Desember 1953 was daar sowat 120 stuks.

In die daaropvolgende jare is nog meer bokke deur die Nasionale Parkeraad aan boere verskaf, hoofsaaklik in die Bredasdorp- en Swellendamdistrikte. Bontebokke is ook in 1946 gestuur aan die Natuurtuin Kaap die Goeie Hoop en aan die Plaaslike Gebied van die Nortier Reserwe van Otterdam. Die Parkeraad het op hierdie manier nie alleen die hoeveelheid bokke binne die perke van die draagkrag van die park gehou nie, maar ook die verspreidingsgebied van hierdie boksoort in die Suidelike Kaapprovinsie uitgebrei. Dit is 'n belangrike stap ter versekering van die voortbestaan van hierdie boksoort mits die invoering van bontebokke op plase beperk bly tot die vroeëre geografiese verspreidingsgebied van die dier.

Ek is dank verskuldig aan die Landmeter-generaal in Kaapstad vir waardevolle informasie en kaarte en ook aan die Direkteur van Parke en Mnr. Dick Wolff vir foto's wat hulle tot my beskikking gestel het.

FOTO/PHOTO: Dick Wolff.

A Blesbuck ram in the National Zoological Gardens.

'n Blesbokram in die Nasionale Dieretuin.

farms, both in the neighbourhood of Bredasdorp, and near the village of Swellendam. Altogether, I doubt very much whether more than 300 of these animals are still in existence."

In this account Selous credits Mr. Alexander van der Byl with steps to preserve the Bontebok in the year 1864. The farm Nagt Wagt was not transferred to Mr. P. V. van der Byl's son, Alexander van der Byl, until the 16th April, 1875, that is to say about eleven years later. But as it is a common practice in South Africa for a son to farm on his father's farm before the land is transferred to the former, there is no reason to doubt Selous' statement.

According to Lang (6, p. 244) the number of Bontebokke surviving in the year 1927 was 77 on three farms in the Bredasdorp District and 44 on four farms in the neighbourhood of Swellendam. It was clear, therefore, that if the animal was to survive in South Africa, it would have to be preserved on a national basis.

The farm Quarrie Bos, which is the northern part of the farm Bushy Park and is situated in the strandveld about 17 miles south of Bredasdorp, was acquired by the Union Government in the year 1930 for the special purpose of preserving the Bontebok, and on the 3rd July, 1931, it became the "Bontebok National Park". Its area is 843·101 morgen (1,784·5 acres).

The Bontebok National Park is enclosed by a strong and high fence with the wires so close that the animals cannot find their way through it. When it was established, the Park contained 22 Bontebokke, but they increased to such an extent that the National Parks Board of Trustees found it necessary to prevent overstocking. It was in the year 1940 that the first specimens were caught after a special catching kraal had been built in the Park. Bontebokke were given to the following (Annual Report of the National Parks Board of Trustees, 1940):—

	Males.	*Females.*
F. W. M. Bowker, Thornkloof, Grahamstown	2	5
P. K. Albertyn, (Jnr.), Riverside	2	7
D. C. Myburgh, Vogel Gezang	2	1
National Zoological Gardens, Pretoria	1	2
J. N. Swart	1	1

Of the seven specimens given to Mr. F. W. M. Bowker five survived (in litt., dated 13th December, 1953). By November of the year 1947 these had increased to 51 (Annual Report of the National Parks Board of Trustees, 1947), and by December, 1953, to about 120.

In subsequent years the National Parks Board of Trustees distributed more specimens to farmers mostly in the Divisions of Bredasdorp and Swellendam. Specimens were also sent to the Cape of Good Hope Nature Reserve and the Local Area of the Nortier Reserve of Otterdam in the year 1946. In this manner the Board has not only kept the number of Bontebokke in the Park within the carrying capacity of the area, but has also achieved a wider distribution of the species over the southern Cape Province. This is an important safeguard for the animal's future, provided that reintroduction to farms is limited to the former geographical range of the Bontebok.

I am indebted to the Surveyor-General in Cape Town for valuable information and maps and to the Director of Parks and Mr. Dick Wolff for photographs.

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Aantekeninge oor die huidige en vroeëre verspreiding van die Swartwitpens in die suidelike deel van die Krugerwildtuin

deur R. Bigalke,

Direkteur van die Nasionale Dieretuin

DIE swartwitpens (*Ozanna grandicornis*) is geensins talryk in die omgewing van Pretorius Kop en Numbi in die suidelike deel van die Krugerwildtuin. Inderdaad is daar blykbaar net 'n paar klein troppe wat daardie gebiede bewoon.

In 1893-94, dit wil sê slegs 'n paar jaar voordat die runderpes epidemie Suid-Afrika geteister het, het dr. P. Rendall soos volg oor die voorkoms van die swartwitpens in daardie gebied geskryf wat nou die suidelike deel van die Krugerwildtuin is (4): „Some of these glorious antelopes still linger between the Sabi and Krokodil Rivers but, as far as we could ascertain, there was only one small troop ".

In die jaar 1896 het Kirby (1) die verspreiding van die swartwitpens soos volg aangegee: „To the east of 31° 30′ long., north and south through the district, this splendid antelope is decidedly scarce, though it appears again on the Libombo slopes; but to the west of that degree of longitude it is plentiful, and one of the commonest antelopes ". In die jaar 1896 was die swartwitpens dus talryker in die gebied ten weste van die huidige Krugerwildtuin as binne die Wildtuin se huidige grense. Op die kaart in sy boek word deur Kirby aangedui dat leeus destyds baie talryk langs die Sabirivier en in die gebied tussen die Sabi- en die Krokodilrivier was. In die geval van die leeu was die toestand dus in die jaar 1896 feitlik dieselfde soos vandag.

Die runderpes epidemie het Suid-Afrika in die jare 1896 tot 1899 swaar geteister. In hoever die swartwitpens deur hierdie siekte in die laeveld aangetas is, is blykbaar nie bekend nie. Ek kon nie daarin slaag om vas te stel of die swartwitpens vatbaar vir runderpes is en ook nie of hy daaronder gelei het of nie. In Oeganda is egter gevind dat die bastereland (*O. equina*) 'n ligte reaksie teen runderpes toon en die swartwitpens is dus waarskynlik ook vatbaar.

Volgens Selous (5) was die swartwitpens se verspreiding in die jaar 1899 soos volg: „Throughout the greater part of Matabeleland, Mashunaland, Manica, the low veldt of the Eastern Transvaal, and in fact the whole of South-East Africa to *the north of Swaziland* and Delagoa Bay, the sable antelope is, or was until recently, plentiful ". Die Komatirivier in Swaziland was dus volgens hierdie verslag naastenby die suidelike grens van die swartwitpens se verspreiding.

Op 13 Junie van die jaar 1894 is die Pongola Wildreservaat in die Suid-Afrikaanse Republiek deur President S. J. P. Kruger gestig. Dit was die eerste wildreservaat van Suid-Afrika en sy ligging was tussen die suide-

Notes on the former and present occurrence of the Sable Antelope in the southern part of the Kruger National Park

by R. Bigalke,

Director of the National Zoological Gardens

THE Sable antelope (*Ozanna grandicornis*) is by no means plentiful in the areas around Pretorius Kop and Numbi in the southern part of the Kruger National Park. In fact only a few small troops generally seem to frequent these areas.

In 1893-94, that is to say only a few years before the rinderpest epizoötic swept through South Africa, Dr. P. Rendall wrote as follows about the Sable antelope in the area that is now the southern part of the Kruger Park (4): " Some of these glorious antelopes still linger between the Sabi and Krokodil Rivers but, as far as we could ascertain, there was only one small troop ".

In 1896 Kirby (1) gave the following distribution of the Sable antelope: " To the east of 31° 30′ long., north and south through the district, this splendid antelope is decidedly scarce, though it appears again on the Libombo slopes; but to the west of that degree of longitude it is plentiful, and one of the commonest antelopes ". This means that in the year 1896 the Sable antelope was commoner in the area to the west of the present Kruger Park than inside the latter's present boundaries. On the map in Kirby's book it is indicated that lions were " very numerous " at that time both along the Sabi River and in the area between the Sabi and the Crocodile River. In the case of the lion, therefore, the position was much the same in 1896 as it is to-day.

The rinderpest epizoötic overran South Africa in the years 1896 to 1899. To what extent the Sable antelope was affected by it in the Low Veld does not seem to be known. I have not been able to find out whether the Sable antelope is susceptible to rinderpest or not, nor whether it suffered from the epidemic referred to. As the Roan antelope (*O. equina*) has been found to react mildly to rinderpest in Uganda (3), the Sable antelope is probably also susceptible.

In 1899 the distribution of the Sable antelope was as follows according to Selous (5): " Throughout the greater part of Matabeleland, Mashunaland, Manica, the low veldt of the Eastern Transvaal, and in fact the whole of South-east Africa to the *north of Swaziland* and Delagoa Bay, the sable antelope is, or was until recently, plentiful ". According to this account, therefore, the Komati River in Swaziland was roughly the southern limit of the Sable antelope's distribution to the south.

On the 13th June, 1894, the Pongola Game Reserve was established in the South African Republic by President S. J. P. Kruger. This, the first game reserve in South Africa, lay between the southern boundary of Swaziland, the Lebombo Mountains and the Pongola River. In his first report for the year 1st August, 1894, to 1st August 1895, (7) the Warden (Mr. H. F. van Oordt) gives a list of the kinds of wild animals occurring in the reserve. As the Sable antelope is not mentioned in this list, it is clear that it did not at that time occur so far south.

like grens van Swaziland, die Lebomboberge en die Pongolarivier. In die eerste verslag vir die jaar 1 Augustus 1894 tot 1 Augustus 1895 (7) het die opsiener (mnr. H. F. van Oordt) 'n lys van die soorte wilde diere opgestel wat in daardie reservaat tuis was. Die swartwitpens se naam verskyn egter nie op daardie lys nie, en dit is dus duidelik dat hierdie dier destyds nie so ver na die suide toe voorgekom het nie.

Kirby (2) berig dat die swartwitpens in die jaar 1899 in beperkte getalle in Portugees Noord-Zambesia en die Shupanga en Chiringoma distrikte van Portugees Oos-Afrika voorgekom het, maar talryk in die Gorongoza distrik was.

In die jaar 1912 het Stevenson-Hamilton (6) berig dat die swartwitpens „is found in the northern Transvaal bush country from west to east being very numerous in the Game Reserve (die huidige Krugerwildtuin) but not existing south of the Crocodile River ". Dit blyk dus dat hierdie bok in 1912 al uitgeroei was in die gebied tussen die noordelike Swaziland en die Krokodilrivier. Dit is jammer dat Hamilton nie besonderhede gee oor dié dele van die wildreservaat waar die swartwitpens in 1912 talryk was nie.

FOTO/PHOTO: Dick Wolff.

A Sable Antelope bull in the Kruger Park.

'n Swartwitpensbul in die Krugerwildtuin.

Kirby (2) states that in 1899 the Sable antelope was found in limited numbers in Portuguese Northern Zambesie and the Shupanga and Chiringoma Districts of Portuguese East Africa, but that it was plentiful in the Gorongoza District.

In the year 1912 Stevenson-Hamilton (6) reported that the Sable antelope " is found in the northern bush country from west to east being very numerous in the Game Reserve (the present-day Kruger Park) but not existing south of the Crocodile River ". It would seem, therefore, as if the antelope had by 1912 been eliminated from the area between the north of Swaziland and the Crocodile River. It is unfortunate that Hamilton does not state more definitely in which parts of the Game Reserve the antelope was numerous in the year 1912.

The centre of the Sable antelope's distribution lies, or perhaps I should say lay, north of the Limpopo River in Northern and Southern Rhodesia and in Nyassaland. In 1899 Selous wrote that nowhere had he seen this antelope in such numbers as in Northern Mashunaland (that is to say the northern part of present-day Southern Rhodesia), where it was by far the commonest species of antelope (5). Selous came to the conclusion that in Africa south of the Zambesi the Sable antelope's range had always been confined to the eastern half of the country, except where the species had passed along the valley of the Limpopo and the northern bank of the Chobi River.

The Sable antelope's abundance in Southern Rhodesia may be judged from the annual returns of the tsetse fly control areas. Up to the year 1952 a total of 31,322 Sable antelopes had been shot in those areas (8).

That the Sable antelope has not been abundant in the Kruger National Park since its establishment in the year 1926 may be inferred from another source. In the annual reports of the Warden of the Kruger National Park for the years 1931 to 1935 figures are given of the deaths of animals from various causes. It is not known how accurate these returns are, since there is nothing to indicate whether the kills were counted regularly in the whole of the Park and whether proper precautions were taken to avoid counting the same kills more than once. In some of the reports (1933, 1934) it is stated that the kills by lions, wild dogs and cheetahs represent about 10 per cent of the total kills, but there is nothing to show how this estimated percentage is arrived at.

According to the Warden's reports the following animals were found killed by lions (the figures for the Blue Wildebeest and the Waterbuck are given for comparison):—

	1931.	1932.	1933.	1934.	1935.
Sable Antelope................	15	19	37	37	42
Blue Wildebeest.....................	423	460	611	701	819
Waterbuck........................	295	247	300	362	317

These figures indicate that the Sable antelope was a much less plentiful animal in the Kruger Park during the years 1931-1935 than either the Blue Wildebeest or the Waterbuck. There is nothing to show that the animal's status is any different today from what it was in those years.

Die middelpjunt van die swartwitpens se verspreiding lê, of miskien sou dit beter wees om te sê het gelê, ten noorde van die Limpoporivier in Noord- en Suid-Rhodesië en ook in Niassaland. In 1899 het Selous berig dat hy nêrens swartwitpense in dergelike getalle gesien het soos in „Northern Mashunaland" (dit wil sê die noordelike deel van die huidige Suid-Rhodesië), waar dit verreweg die talrykste wildboksoort was (5). Selous het tot die gevolgtrekking gekom dat die swartwitpens se verspreiding in Afrika ten suide van die Zambesirivier altyd tot die oostelike helfte van die land beperk was, behalwe waar die dier langs die Limpopovallei en die noordelike wal van die Chobirivier 'n groter gebied ingeneem het.

Hoe talryk die swartwitpens in Suid-Rhodesië is blyk uit die jaarlikse gegewens in verband met die beheer van tsetsevlieë. Tot die jaar 1952 is daar in die betrokke gebiede 31,322 swartwitpense geskiet (8).

Dat die swartwitpens nie in groot getalle in die Krugerwildtuin sedert sy stigting in die jaar 1926 voorgekom het nie, kan van 'n ander bron afgelei word. In die jaarverslae van die Krugerwildtuin se opsiener vir die jare 1931 tot 1935 verskyn daar syfers van diere wat om verskillende redes doodgevind is. Hoe noukeurig hierdie syfers is, is nie bekend nie, want daar word nie aangedui of die karkasse wat deur roofdiere gevang is gereeld in die hele Wildtuin getel is, en of die nodige voorsorgmaatreëls getref is om te verhoed dat die karkasse meer as eenmaal getel is. In sommige verslae (1933, 1934) word beweer dat die karkasse van diere wat deur leeus, wildehonde en jagluiperds doodgemaak is ongeveer 10 persent van die totale vangste uitmaak, maar daar is geen gegewens om te wys hoe hierdie persentasie vasgestel is.

Volgens die opsiener se verslae is die volgende diere in die Wildtuin as vangste van leeus gevind (die syfers vir blouwildebeeste en waterbokke word vergelykenderwyse aangegee): —

	1931.	1932.	1933.	1934.	1935.
Swartwitpens	15	19	37	37	42
Blouwildebees ...	423	460	611	701	819
Waterbok	295	247	300	362	317

Hierdie syfers wys dat die swartwitpens in die Krugerwildtuin in die jare 1931-1935 heelwat minder talryk as die blouwildebees of die waterbok was. Daar is geen bewys dat die dier se status vandag verskil van wat dit destyds was.

Die bewering dat leeus vir die skaarste van die swartwitpens in die Pretorius Kop- en Numbi-gebiede verantwoordelik is kan nie gestaaf word nie. Duidelik is dat hoe verder die afstand van 'n wilde dier se verspreidingssentrum is, hoe minder talryk die dier word. Omdat die Krokodilrivier vroeër digby die grens van die swartwitpens se suidelike verspreiding in die laeveld was, sou 'n mens nie verwag dat die dier onmiddellik ten noorde van daardie rivier talryk sou wees nie. Die beskikbare getuienis wys dat in die geval is. Sowel die Pretorius Kop- as die Numbi-gebied lê naby die suidelikste grens van die swartwitpens se verspreiding. Dit is dus baie twyfelagtig of die dier ooit talryk in daardie gebiede sal word al sou dit ook moontlik wees om alle soorte groot roofdiere uit die twee gebiede uit te hou.

The claim that lions are responsible for the scarcity of the Sable antelope in the Pretorius Kop and Numbi areas cannot be substantiated. It is obvious that the further one proceeds from the centre of a wild animal's distribution, the less abundant will it become. As the Crocodile River formerly was near the limit of the Sable antelope's southern distribution in the Low Veld, one would not expect it to be plentiful immediately north of that river. The available evidence shows that that is the case. The Pretorius Kop and the Numbi area are near the southernmost limit of the distribution of the Sable antelope. It is very doubtful indeed, therefore, whether the animal will ever become abundant in these areas, even if it were possible to keep them free of all kinds of large predators.

Even though illegal shooting of big game was rife in the southern part of the present-day Kruger Park prior to the rinderpest epizoötic, the evidence given above justifies the conclusion that in the Pretorius Kop and Numbi areas of the Kruger National Park the Sable Antelope's present status differs little, if indeed at all, from its status in the years 1893-94.

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Nests of Sociable Weavers near Barberspan.

Neste van Familievoëls naby Barberspan.

Die onwettige jag van grootwild voor die runderpes epidemie het wel in die suidelike deel van die huidige Krugerwildtuin hoogty gevier, maar bogenoemde getuienis regverdig die gevolgtrekking dat in die Pretorius Kop- en die Numbi-gebied van die Krugerwildtuin die swartwitpens se huidige status min of glad nie van sy status in die jare 1893-94 verskil nie.

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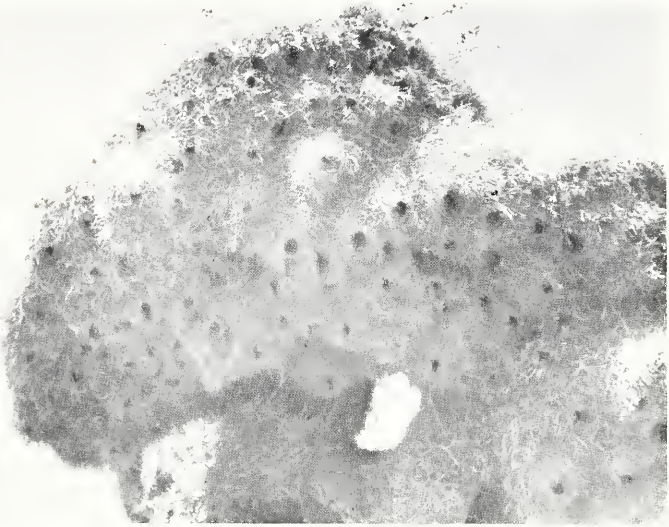


Nests of Sociable Weavers as seen from below.

Neste van Familievoëls soos van onder gesien.

'n Voorlopige verslag van die verspreiding van sekere wildsoorte in Transvaal (1954)

deur W. K. Kettlitz

OP die bygaande kaart word die verspreiding van sekere wildsoorte wat in die Transvaal voorkom, aangetoon. Oor die algemeen kan die verspreiding onder twee hoofde behandel word, naamlik: —

(1) die presiese lokaliteite van skaars soorte en van soorte wat reeds van hul trekgewoontes afgesien het en nou op omheinde plase ingekamp is;

(2) die algemene verspreiding en digtheid van soorte wat nog rond beweeg of trek wat nie presies op die kaart aangedui kan word nie. Die gearseerde gebied op die kaart dui die verspreiding van hierdie soorte as 'n enkele groep aan.

Die verspreiding en gegewens ten opsigte van wildsoorte in hierdie verslag het slegs tot die Transvaal buite die Nasionale Krugerwildtuin betrekking.

Die 26ste breedtegraad is min of meer die skeidslyn tussen hoëveldse en laeveldse wildsoorte. Die hoëveldse soorte omvat die volgende: springbokke, blesbokke en swartwildebeeste. Die laeveldse soorte is koedoes, rooibokke, blouwildebeeste, sebras, basterhartbeeste, bastergemsbokke, swartwitpense, nyalas, rietbokke, klipspringers, waterbokke, buffels, kameelperde, olifante, vlakvarke, bosvarke en seekoeie. Die tussenvorme wat aanpas in beide die hoëveldse en laeveldse streke is steenbokke, duikers, oorbietjies, rooiribbokke, bosbokke, elande, gemsbokke en rooihartbeeste.

I

Suid van die 26ste breedtegraad, d.w.s., op die oostelike en westelike hoëveld van die Transvaal, kom blesbokke en springbokke voor met die digste bevolking van eersgenoemde in die Ermelose distrik en van laasgenoemde in die Ventersdorpse, Wolmaransstadse en Bloemhofse distrikte met 'n gemengde bevolking tussen die twee gebiede. In die Transvaal is hierdie twee boksoorte, min of meer oral ingekamp op omheinde plase en het heeltemal van die trekgewoontes van vroeër dae afgesien.

(*a*) DIE BLESBOK (*Damaliscus albifrons*)

Die verspreiding word redelik noukeurig op die kaart aangedui met feitlik elke plaas waarop hierdie wildsoort voorkom. Die enigste afwyking op die algemene voorkoms van die blesbok is in die gebied naby Potgietersrus. Hierdie blesbokke is in 1933 na die gebied ingevoer deur mnr. Percy Fyfe, vorige eienaar van die plaas Lunsklip. Oorspronklik is slegs 7 bokke losgelaat wat intussen aangewas het sodat daar vandag benewens die min of meer 800 blesbokke wat op die plaas loop ook nog verspreide troppies op aangrensende plase voorkom. Hierdie prestasie kon alleen geskied onder die strenge konservasie van mnr, Fyfe wat sedertdien die plaas, nou bekend as die „ Percy Fyfe-natuurreservaat ", aan die Provinsie geskenk het.

A preliminary report on the distribution of certain species of game in the Transvaal (1954)

by W. K. Kettlitz

ON the accompanying chart the distribution of certain game species extant in the Transvaal is indicated. The distribution of the species may, generally speaking, fall to be dealt with under two categories, viz:—

(1) The exact localities of rare species and of those species which have ceased their migratory habits and are now fenced-in on farms.

(2) The general distribution and density of species which have retained their migratory traits and which cannot be pinpointed on a chart. The hatched area on the chart denotes the distribution of these species taken as a single group.

The distribution of and data pertaining to game set out in this report applies to the Transvaal *outside* the confines of the Kruger National Park.

The 26th Latitude is more or less the demarcation line between the Highveld and Lowveld species. The Highveld species comprise Springbuck, Blesbuck and Black Wildebeest. The Lowveld species are Kudu, Impala, Blue Wildebeest, Zebra, Tsessebe, Roan Antelope, Sable Antelope, Nyala, Reedbuck, Klipspringer, Waterbuck, Buffalo, Giraffe, Elephant, Warthog, Bushpig and Hippopotamus. The intermediate species which are adaptable to both High- and Lowveld are Steenbuck, Duiker, Oribi, Mountain Reedbuck, Bushbuck, Eland, Gemsbok and Red Hartebeest.

I.

South of the 26th Latitude, i.e. on the eastern and western Highveld of the Transvaal, Blesbuck and Springbuck are found, with the densest population of the former in the Ermelo District and of the latter in the Ventersdorp, Wolmaransstad and Bloemhof Districts, with a mixed population between the two points. In the Transvaal all Blesbuck and Springbuck are more or less fenced-in and do not migrate as in days gone by.

(*a*) THE BLESBUCK (*Damaliscus albifrons*)

The distribution is indicated fairly accurately on the chart showing practically every farm on which this species is found. The only area not conforming to the general occurrence of Blesbuck is that near Potgietersrus. Here, during 1933, Blesbuck were introduced into the area by Mr. Percy Fyfe, the former owner of the farm Lunsklip. At that time seven buck were released and they have increased in the interim to approximately 800 on the farm and a few scattered herds on adjoining farms. This fine achievement is due solely to the strict conservation methods applied by Mr. Fyfe, who has since donated the farm, now known as The Percy Fyfe Nature Reserve, to the Province.

The total number of Blesbuck in the Transvaal is estimated at 25,000.

(*b*) DIE SPRINGBOK (*Antidorcas marsupialis*)

Net soos in die geval van blesbokke word die verspreiding van hierdie wildsoort ook redelik noukeurig, op die kaart aangedui, met die digste verspreiding op die westelike hoëveld.

Omdat die gebied waar springbokke en blesbokke voorkom ooreenkom met die gebied waar intensief met skape en gesaaides geboer word, vind mens dat hierdie bokke op plase met deeglike heinings ingekamp is en op hierdie manier is die trekgewoontes van hierdie twee wildsoorte feitlik tot stilstand gebring.

Die totale aantal springbokke in die Transvaal, insluitende 'n trop van ongeveer 600 op die S.A. Lombard-natuurreservaat in die Bloemhofse distrik, word op ongeveer 20,000 geskat.

(*c*) DIE SWARTWILDEBEES (*Connochaetes gnou*)

In 'n opname deur dr. R. Bigalke in 1945 insake die status van die swartwildebees in Suid-Afrika gee hy die totale getal aan as 1,048, waarvan 61 in die Transvaal voorkom. Van hierdie 61 was daar 15 in dieretuine en 46 op die plaas Heuningkrans in die Wolmaransstadse distrik. Die swartwildebees word reeds vir 'n lang tyd deur die Hoffman-familie op bogenoemde plaas beskerm. Gedurende 1949 het die familie Hoffman goedgunstiglik 'n klompie van die diere aan die Transvaalse Provinsiale Administrasie afgestaan. Daar is 12 uit hierdie kudde gevang en na die S.A. Lombard-natuurreservaat geneem waar hulle goed aanteel en in 1954 reeds tot 'n kudde van 46 aangewas het.

Op die plase Welgelegen in die Ermelose distrik en Waterval in die Witbankse distrik is daar twee klein troppies wat fluks vorder. Die trop op laasgenoemde plaas is onder die beskerming van die Hertzog-familie. Die totale aantal swartwildebeeste in Transvaal, insluitende dié wat in dieretuine is, beloop nou ongeveer 120. Sedert die opname in 1945 het hierdie wildsoort dus onder strenge beskerming aangewas sodat daar nou ongeveer tweemaal soveel is.

(*d*) DIE NYALA (*Nyala angasii*)

Hierdie soort wild kom feitlik nie meer in Transvaal voor nie. Eintlik het hulle nooit juis in enige noemenswaardige getalle hier voorgekom nie. Hulle kom in baie klein getalle voor ten ooste van Messina in die omgewing van Pafuri asook op die plase Doppie en Feskaal. Klein troppies is ook opgemerk in die Pongolariviervallei naby Gollel, suid van Swasieland. Dit word beweer dat daar 'n paar in die boloop van die Matlabasrivier in die Waterbergse distrik en in die Burgersfortgebied in die Lydenburgse distrik sowel as in die „ Black Hills "-gebied van die Hans Merensky-natuurreservaat op die Letabarivier voorkom. Hierdie bewerings is egter nog nie bevestig nie. Daar is 'n paar in die Loskopdam-natuurreservaat in die Witbankse en Middelburgse distrikte losgelaat.

Dit kan met veiligheid gesê word dat daar nie meer as 100 nyala in Transvaal is nie.

(*e*) DIE ELAND (*Taurotagus oryx*)

Die eland kan ook as feitlik uitgestorwe beskou word. As gevolg van die gewildheid van elandvleis en -biltong en die mak gewoontes van hierdie bok is daar reeds van vroegs af kwaai op hulle jaggemaak sodat daar vandag slegs 'n paar op die Malongavlakte in die Oostelike Soutpansbergse

(*b*) THE SPRINGBUCK (*Antidorcas marsupialis*)

The distribution of Springbuck, like that of Blesbuck, is also fairly accurately reflected on the chart, with the densest population occurring in the western Highveld.

Due to intensive farming with good fencing a sine qua non, the migratory habits of Blesbuck and Springbuck were brought to a halt many years ago.

The total number of Springbuck in the Transvaal, including a fine herd of about 600 on the S.A. Lombard Nature Reserve in the District of Bloemhof, is approximately 20,000.

(*c*) THE BLACK WILDEBEEST (*Connochaetes gnou*)

In a survey by Dr. R. Bigalke in 1945 on the status of the Black Wildebeest in South Africa, he gave the total as being 1,048. Of these, 61 only were in the Transvaal; 15 in zoological gardens and 46 on the farm Heuningkrans in the Wolmaransstad District. The Black Wildebeest has been protected by the Hoffman family on this farm for a considerable time.

During 1949 the Hoffmans graciously donated twelve of their herd to the Transvaal Provincial Administration. These were caught and taken to the S.A. Lombard Nature Reserve where they are increasing rapidly, already forming a herd of forty-six in 1954.

On the farms Welgelegen in the District of Ermelo and Waterval in the District of Witbank, two small, thriving herds occur. The herd on the latter farm is protected by the Hertzog family.

The total number of Black Wildebeest in the Transvaal, including those in zoological gardens, is estimated at 120; that is to say, the number of this species has doubled itself under strict protection since the survey in 1945.

(*d*) THE NYALA (*Nyala angasii*)

In the Transvaal this species is, to all intents and purposes, non-existent. It has virtually never been found in great numbers anywhere.

To the east of Messina they occur in small numbers in the region of Pafuri and on the farms Doppie and Feskaal.

Small herds are also encountered in the Pongola Valley near Gollel south of Swaziland. Unverified reports indicate the presence of Nyala in the upper reaches of the Matlabas River in the District of Waterberg, in the Burgersfort area in the District of Lydenburg and in the " Black Hills " area of the Hans Merensky Nature Reserve on the Great Letaba River. A few have been introduced into the Loskopdam Nature Reserve, Districts of Witbank and Middelburg.

It can be safely said that the number of Nyala in the Transvaal does not exceed 100.

(*e*) THE ELAND (*Taurotragus oryx*)

The Eland also is virtually extinct in the Transvaal. Owing to the demand for Eland venison and biltong and on account of its docile habits, this species has been hunted since the early days with the result that only a few rove the Molongo Flats in the eastern portion of the Soutpansberg District. Another small number occur between the Shingwidsi and Letaba Rivers, moving back and forth over the boundary of the Kruger National Park.

distrik voorkom. 'n Klein klompie kom ook tussen die Shingwidsi- en Letabariviere voor waar hulle oor en weer oor die grens van die Nasionale Krugerwildtuin beweeg. Die totale getal sal nie meer as 75 wees nie.

'n Trop van 12 elande word in die S.A. Lombard-natuurreservaat vir teel en verhuislikingdoeleindes aangehou.

(*f*) DIE BASTERHARTBEES (*Damaliscus lunatus*)

Die basterhartbees is skaars en staan in gevaar om heeltemal te verdwyn. Hulle is yl-verspreid tussen die Shingwidsi- en Klein-Letabariviere langs die grens van die Nasionale Krugerwildtuin. Daar is 'n paar gevestigde troppies in die Pelgrimsrusse distrik en wel op die plase Moriah, Fleur de Lys, Guernsey, Hoedspruit, Buffelshoek, Dingleydale en Champagne.

Die eienaars van die plase Moriah en Fleur de Lys het 'n klompie basterhartbeeste aan die Transvaalse Provinsiale Administrasie geskenk en nadat hulle gevang is, is hulle na die Hans Merensky-natuurreservaat geneem waar hulle reeds aangeteel het.

Ander troppe word op die plase langs die Nasionale Krugerwildtuingrens in die Pelgrimsrusse distrik vanaf die Olifantsrivier tot sover suid as die Sandrivier aangetref. Hierdie troppe is egter nie ingekamp nie. Enkele klein troppies kom ook in die distrikte van Waterberg, Potgietersrus en Soutpansberg voor.

Volgens skatting is daar ongeveer 500 basterhartbeeste in die provinsie oor en hulle word ten strengste beskerm.

(*g*) DIE GEMSBOK (*Oryx gazelle*)

Die enigste gemsbokke wat in Transvaal voorkom is op die plaas Langjan in die Soutpansbergse distrik. Hierdie bokke het alleenlik behoue gebly deur die uiters strenge beskerming van die eienaars, eers mnr. H. Visser en nou mnr. J. F. Engelbrecht. Die trop is nou 28 sterk. Terwyl hierdie gegewens ingesamel is, is daar ook melding gemaak van 'n paar gemsbokke wat oor die Limpoporivier na die plaas Overvlakte in gemelde distrik gekom het. Hierdie berigte is nie bevestig nie en skyn baie onwaarskynlik te wees. Die plan is om die S.A. Lombard-natuurreservaat van hierdie wildsoort te voorsien.

(*h*) DIE ROOIHARTBEES (*Alcelaphus caama*)

Die rooihartbees is baie skaars in Transvaal en kom nog slegs op 'n paar plekke voor. Die grootste trop van ongeveer 120 stuks word op die plaas Nietverdiend in die Maricose distrik aangetref. Deur strenge beskerming oor 'n lang tydperk het die Swart-familie hierdie trop opgebou sodat dit vandag feitlik die enigste stabiele trop in Transvaal is. Deur die welwillendheid van gemelde familie is 'n klompie van hierdie bokke aan die Transvaalse Provinsiale Administrasie geskenk en na die S.A. Lombard-natuurreservaat geneem waar hulle in 1954 tot 16 stuks gevorder het.

As gevolg van die strenge beskerming is daar ook nog 'n paar plase in die Rustenburg-, Waterberg- en Potgietersrus-distrikte waar rooihartbeeste voorkom. Die totale getal in Transvaal sal egter nie meer as 300 stuks wees nie.

(*i*) DIE BASTERGEMSBOK (*Ozanna equina*)

Die bastergemsbok is op die punt om heeltemal te verdwyn aangesien daar nie 'n enkele plek in Transvaal is waar 'n trop op 'n ingekampte plaas beskerming geniet nie. Die bestaande klein troppies trek so rond dat beskermers dit moeilik vind om hul bewegings aan bande te lê.

The total population does not exceed 75.

A herd of twelve Eland is being used for breeding and domestication at the S.A. Lombard Nature Reserve.

(*f*) THE TSESSEBE (*Damaliscus lunatus*)

The Tsessebe is rare and in danger of becoming extinct. Between the Shingwidsi and the Small Letaba Rivers they are sparsely distributed along the boundary of the Kruger National Park while in the District of Pilgrim's Rest, a number of small herds are established on the farms Moriah, Fleur de Lys, Guernsey, Hoedespruit, Buffelshoek, Dingleydale and Champange. The owners of the farms Moriah and Fleur de Lys have donated some Tsessebe to the Transvaal Provincial Administration. These were captured on the farms and taken to the Hans Merensky Nature Reserve where they have already bred. Further herds are to be found in the Pilgrim's Rest District on farms along the boundary of the Kruger National Park, from the Olifants River as far south as the Sand River. The latter herds are, however, not fenced-in.

Smaller herds are found on farms in the Waterberg, Potgietersrus and Letaba and Soutpansberg Districts.

It is estimated that no more than 500 specimens of this antelope remain in the province today and they are being protected rigorously.

(*g*) THE GEMSBUCK (*Oryx gazella*)

The only Gemsbuck in the Transvaal today, are found on the farm Langjan in the Soutpansberg District where, owing to the strict protection of the owners, firstly Mr. H. Visser and at present Mr. J. F. Engelbrecht, they were saved from complete extermination. The herd totals 28. While these data were being obtained it was reported that a number of Gemsbuck had crossed the Limpopo River to the farm Overvlakte in the same district. The report has however, not been verified and the alleged migration is considered to be highly improbable.

It is intended to restock the S.A. Lombard Nature Reserve with this species.

(*h*) THE RED HARTEBEEST (*Alcelaphus caama*)

The Red Hartebeest is very rare and occurs only in a few isolated places in the Transvaal. The largest herd of about 120 is to be found on the farm Nietverdiend in the Marico District. By prolonged, strict conservation the Swart family built up this herd to what must today be considered as being virtually the only stable herd in the Transvaal.

By the generosity of this family a number of Red Hartebeest was presented to the Transvaal Provincial Administration and taken to the S.A. Lombard Nature Reserve where they increased to 16 specimens in 1954.

Due to strict protection this antelope also survives on a few farms in the Rustenburg, Waterberg and Potgietersrus Districts.

The total number in the Transvaal does not exceed 300.

(*i*) THE ROAN ANTELOPE (*Ozanna equina*)

The Roan Antelope is in grave danger of becoming extinct. Nowhere in the Transvaal is a single herd protected on a fenced-in farm. The existing small herds migrate to such an extent that protectionists have difficulty in curbing their movements.

'n Paar vind hul tuiste in die bergagtige deel van die Waterbergse distrik bekend as die „New Belgium-blok ". Daar is ook 'n paar troppies in die omgewing van die Hlaulumerivier in die Pelgrimsrusse distrik, aangrensende aan die Nasionale Krugerwildtuin. Op die grensplase in hierdie deel kan soms troppe van 30 en meer gesien word. Hulle beweeg egter heen-en-weer oor die grens van die Nasionale Krugerwildtuin.

Melding word soms gemaak van bastergemsbokke tussen die Shingwidsi- en Klein-Letabariviere, maar hierdie troppies kan as insypelinge vanaf die Nasionale Krugerwildtuin beskou word. In die Squamansgebied naby Komatipoort is daar ook 'n klein troppie.

Die totale aantal in Transvaal is egter nie meer as 100 stuks nie en dit is dus uiters noodsaaklik dat die Hans Merensky-natuurreservaat van hierdie spesie voorsien word.

Foto/Photo: Dick Wolff.

Bastergemsbok. Roan Antelope.

A few are found in the mountainous region of the Waterberg District, known as the " New Belgium Block ", while small numbers are known to exist in the vicinity of the Hlaulume River in the Pilgrim's Rest District bordering on the Kruger National Park. Here herds of 30 or more can sometimes be seen. They frequently cross the border into the Kruger National Park.

It is reported that in the region between the Shingwidsi and the Small Letaba Rivers a few have been encountered but these must be regarded as having crossed from the Kruger National Park. A small herd exists in the Squamans area near Komatipoort.

The total number in the Transvaal does not exceed 100 and it is imperative that the Hans Merensky Nature Reserve be restocked with the species.

(*j*) THE SABLE ANTELOPE (*Ozanna grandicornis*)

Although this antelope is also rare in the Transvaal, we are fortunate in having a few herds strictly protected on fenced-in farms. Along the Magalakwin River in the western Soutpansberg District a number of small herds are found while in the Letaba District some enjoy protection on fenced-in farms. This also applies to a stable herd on the Hans Merensky Nature Reserve on the Great Letaba River.

In the Lowveld of the Pilgrim's Rest District, on the Klaserie River and along the boundary of the Kruger National Park, this antelope is being protected on quite a number of farms.

On the Sand River, near its confluence with the Sabie River, where large numbers of Sable Antelope existed, they were all but wiped out by disease a number of years ago. Lately this species has increased in that area and it is hoped that it may again attain its former strength in time to come. A herd also exists between the Olifants and the Blyde Rivers, moving between the farms Portsmouth and Calais.

There are isolated small herds in the Waterberg District and on the farms Urk and In der Mark in the Pietersburg District.

The total number in the Transvaal does not exceed 1,000.

(*k*) THE BUFFALO (*Syncerus caffer*)

This species is found in limited numbers on the southern bank of the Limpopo in the vicinity of Pafuri. Periodically the animals cross the Kruger National Park boundary. There is evidence of a herd establishing itself between the Sand and Sabie Rivers—this area of almost 70,000 morgen at the junction of the two rivers is a private reserve known as the " Sabi-Sand Wildtuin ".

Owing to their habit of crossing the Park border it is most difficult to determine their number precisely, but the largest number in the Transvaal at any time does not exceed 100. A small herd is being built up at the Hans Merensky Nature Reserve for experimental domestication purposes.

(*j*) DIE SWARTWITPENS (*Ozanna grandicornis*)

Alhoewel hierdie wildsoort in Transvaal ook skaars is, is daar gelukkig 'n paar troppe wat strenge beskerming op ingekampte plase geniet. Langs die Magalakwinrivier in die westelike Soutpansbergse distrik is daar 'n paar klein troppies terwyl daar in die Letaba-distrik 'n paar troppe is wat op ingekampte plase beskerm word. Dit geld ook vir die trop op die Hans Merensky-natuurreservaat wat langs die Letabarivier geleë is.

In die laeveld van die Pelgrimsrusse distrik, op die Klaserierivier en langs die Nasionale Krugerwildtuingrens word hierdie wildsoort op verskeie plase beskerm. Op die Sandrivier naby sy samevloei met die Sabirivier was daar groot troppe swartwitpense wat etlike jare gelede amper uitgesterf het as gevolg van 'n siekte wat onder hulle uitgebreek het. Onlangs het hierdie soort wild weer sy verskyning in hierdie deel gemaak en dit word gehoop dat hulle mettertyd weer hul vroeëre sterkte sal bereik. Daar is ook 'n trop tussen die Olifants- en Blyderiviere wat tussen die plase Portsmouth en Calais beweeg. Afgesonderde troppies kom in die Waterbergse distrik sowel as op die plase Urk en In der Mark in die Pieterburgse distrik voor.

Die totale aantal in die Transvaal sal nie 1,000 stuks oorskrei nie.

(*k*) DIE BUFFEL (*Syncerus caffer*)

Hierdie wildsoort word in klein getalle op die suidelike oewer van die Limpoporivier in die omgewing van Pafuri gevind. Van tyd tot tyd beweeg hulle oor die grens van die Nasionale Krugerwildtuin. Daar is tekens van 'n gevestigde trop tussen die Sabie- en Sandrivier. Hierdie gebied van ongeveer 70,000 morge tussen die twee riviere is 'n privaat-wildreservaat en staan as die „ Sabi-Sand Wildtuin " bekend.

As gevolg van hul gewoonte om heen en weer oor die grens van die Nasionale Krugerwildtuin te beweeg, is dit moeilik om hul getalle presies vas te stel. Die grootste getal wat op een tydstip binne die Transvaal se grense voorkom, is nie meer as 100 nie. 'n Klein troppie word in die Hans Merensky-natuurreservaat vir eksperimentele verhuislikingsdoeleindes opgebou.

(*l*) DIE OLIFANT (*Loxodonta africana*)

Daar is geen permanente trop olifante in die Transvaal nie. Hulle kom die Unie egter periodiek binne langs die hele lengte van die Nasionale Krugerwildtuin se grens. Hierdie beweging oor die Unie se grens geskied ook vanaf Suid-Rhodesië en Betsjoeanaland met die middelpunt in die omgewing van die samevloei van die Shasi- en Limpoporivier.

Die grootste aantal wat die Transvaal onlangs binnegekom het, was ongeveer 250 stuks.

(*m*) DIE RENOSTER (*Ceratotherium simum* en *Diceros bicornis*)

Die witrenoster (*Ceratotherium*) het teen die einde van die vorige eeu en die swartrenoster (*Deceros*) vroeg in die huidige heeltemal uit Transvaal verdwyn.

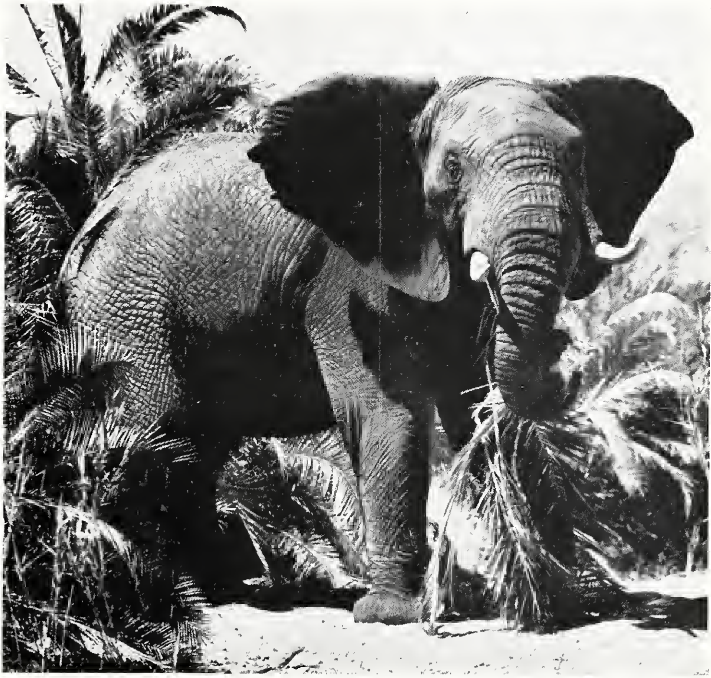
(*n*) DIE KAMEELPERD (*Giraffa camelopardalis*)

Kameelperde is redelik volop in die Pelgrimsrusse laeveld. Hulle word langs die suidelike oewer van die Olifantsrivier met die digste konsentrasies tot ongeveer 30 myl suid van die Olifants asook in die vallei van die Klaserierivier aangetref. Hulle word suidwaarts tot by die Sandrivier aangetref met 'n enkeling wat soms selfs sover as die Sabierivier gaan,

(*l*) THE ELEPHANT (*Loxodonta africana*)

No permanent herd of elephants exists in the Transvaal but they periodically cross the Kruger National Park boundary along its entire length into the Province. This migration into the Transvaal also takes place from the Bechuanaland-Southern Rhodesia areas with the focal point at the confluence of the Shasi and the Limpopo Rivers.

The largest number known to have entered the Transvaal recently was approximately 250.



PHOTO/FOTO: Dick Wolff.

Pasop! Beware!

(*m*) THE RHINOCEROS (*Ceratotherium simum* and *Diceros bicornis*)

The White Rhinoceros (*Ceratotherium*) disappeared from the Transvaal towards the close of last century and the Black (*Diceros*) early in the present.

(*n*) THE GIRAFFE (*Giraffa camelopardalis*)

Giraffes are fairly abundant in the Pilgrim's Rest Lowveld. They occur along the Southern bank of the Olifants River with the densest concentration stretching approximately 30 miles south and in the Klaserie Valley. They are encountered southwards as far as the Sand River, an occasional giraffe crossing to the Sabie River, but are seldom found south of the Sabie.

maar hulle word selde suid van laasgenoemde rivier aangetref. In die Letaba distrik is kameelperde ylverspreid tot so ver noord as die Selatirivier en hulle word selde noord van hierdie rivier en nooit noord van die Letabarivier aangetref nie. Hul verspreiding is dus beperk tot die Letabarivier in die noorde, die Sabierivier in die suide, die Drakensbergreeks in die weste en die Nasionale Krugerwildtuin in die ooste.

Omdat kameelperde baie rondbeweeg is dit moeilik om hul getalle met sekerheid vas te stel. In die dele waar hulle dig verspreid is, kan dit egter gesê word dat daar tot veertig in 'n trop kan wees.

II

(1) As gevolg van die feit dat die landbou-aktiwiteite in Transvaal vanaf die groot sentrums in die suidelike en sentrale dele na die verder-liggende dele noord-, oos- en weswaarts uitgebrei het, volg dit ook dat die wild saam met hierdie uitbreiding verminder het. Die dele nader aan die grense het die laatste bevolk geraak en dus is daar nog die meeste wild oor.

(2) Die feit dat die hele westelike en noordelike grens ten noorde van die Maricorivier uit riviere bestaan, is op sigself 'n lokmiddel vir wild. Dit volg dus dat op dié grens onder normale omstandighede meer wild as elders aangetref sal word. Dieselfde geld ook vir die oostelike grens wat gemeenskaplik met die westelike grens van die Nasionale Krugerwildtuin val.

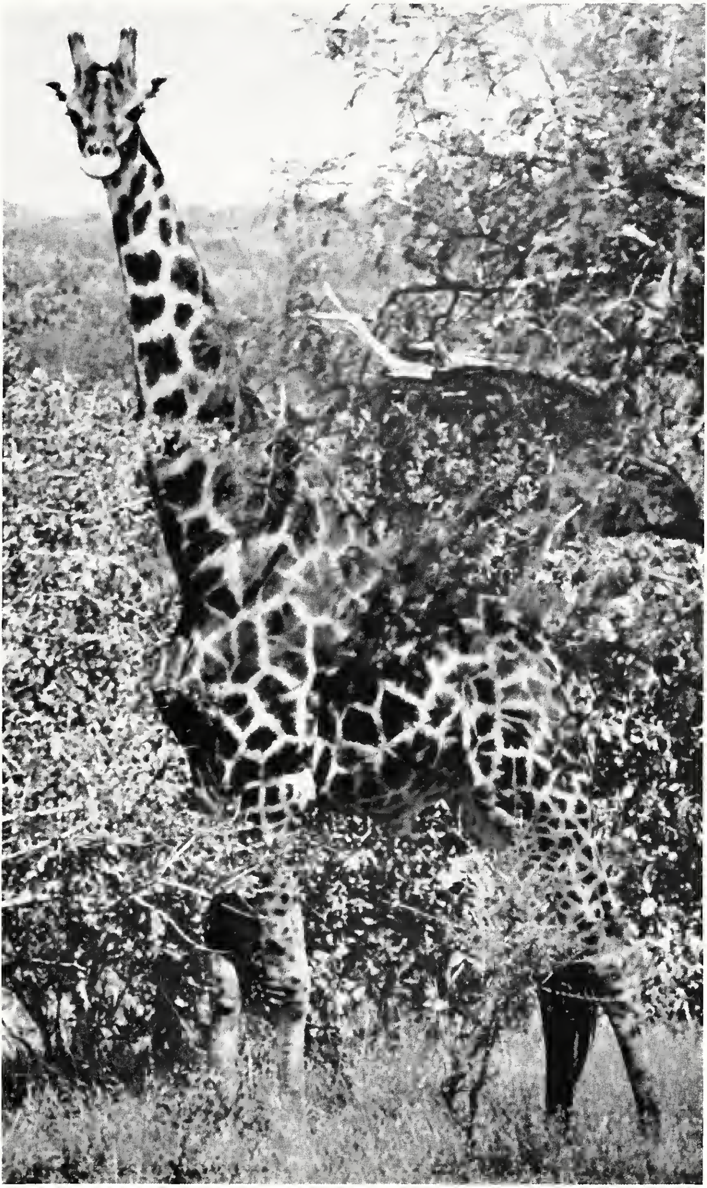
Die gearseerde deel op die kaart weerspieël bogenoemde twee feite en dui min of meer die verspreiding van die vernaamste wildsoorte van die laeveld en bosveld aan, d.w.s. koedoes, rooibokke, blouwildebeeste, sebras en waterbokke.

Voordat elke soort wild in hierdie groep apart behandel word, is dit wenslik dat die gearseerde dele op die kaart in die algemeen bespreek word.

Bestudeer die kaart beginnende in die weste, dan regsom na die noorde, dan ooswaarts langs die Limpoporivier, daarvandaan suidwaarts langs die grens van die Nasionale Krugerwildtuin en ten laaste die sentrale gebied.

Beginnende aan die westekant waar die Maricorivier die grens van Transvaal vorm, word rooibokke en koedoes langs die rivier aangetref met 'n paar waterbokke noordwaarts na aan die Krokodilrivier. Verder binnelands is wild ylverspreid behalwe in 'n paar kolle langs die Krokodilrivier waar daar as gevolg van strenge beskermingsmaatreëls oor 'n lang tydperk nog redelike digte sametrekkings van rooibokke voorkom. Suid van die Krokodilrivier is daar feitlik geen blouwildebeeste of sebras nie. Noord van die Krokodilrivier langs die grens en in besonder by die samevloei van hierdie rivier met die Maricorivier, kom rooibokke en koedoes in redelike groot getalle voor maar hul getalle word baie minder na die binneveld en hier kom hulle slegs voor op die plase waar hulle streng beskerm word. In hierdie gebied word sebras ook in klein getalle met enkele blouwildebeeste op 'n paar plase aangetref.

In die Waterberg-, Potgietersrus- en Pietersburgdistrikte word rooibokke aangetref terwyl blouwildebeeste en waterbokke skaars is en sebras slegs in klein getalle voorkom. Die digtheid van die koedoebevolking is ongeveer dieselfde as in die ander distrikte waar koedoes wel voorkom. Langs die grens in laasgenoemde drie distrikte is hierdie wildsoorte meer volop as wat hulle in die binneveld is, behalwe op 'n paar binneveldse plase waar al vyf soorte beskerming geniet.



FOTO/PHOTO: J. W. McDonald.

Camouflage.

Vanaf die Magalakwinrivier langs die grens van Transvaal tot by die heel noordelike draai in die Limpoporivier vermeerder rooibokke, wildebeeste, sebras, koedoes en waterbokke maar daarvandaan verminder hul getalle vinnig na Messina se kant toe waar daar geen of baie min wild te vind is. Daar is een gedeelte langs die rivier waar wild, veral rooibokke, baie volop is. Waterbokke en koedoes is hier ook volop en daar is redelike getalle sebras en blouwildebeeste. Binnelands in hierdie selfde streek is daar 'n klompie plase waar volop wild aanwesig is as gevolg van strenge beskerming.

Oos van Messina langs die Limpoporivier vermeerder rooibokke en koedoes maar met 'n paar uitsonderings word hier nie wildebeeste en sebras aangetref nie. Die binneveld van hierdie streek is baie yl bevolk en in die geheel is wild hier uiters skaars behalwe in die geval van 'n paar plase waar streng beskerming toegepas word. Hierdie plase staan uit soos wildoases in 'n wildlose woestyn. Koedoes, waterbokke en rooibokke is volop op hierdie plase.

Langs die noordelike grens van die Nasionale Krugerwildtuin word feitlik geen wild aangetref nie. Vanaf ongeveer tien myl noord van die Shingwidsirivier suidwaarts langs die grens van die Nasionale Krugerwildtuin vermeerder die wild weer met 'n redelike digte verspreiding van rooibokke, koedoes, wildebeeste, sebras en waterbokke tussen die Shingwidsi- en Letabariviere.

As gevolg van intensiewe landbou-aktiwiteite langs die Letabarivier is wild hier al baie skaars met uitsondering van daardie gedeelte van die rivier wat direk aan die Nasionale Krugerwildtuin grens.

Tussen die Letaba- en Olifantsrivier is wild reeds baie uitgedun en hier kom die digste sametrekkings op die Selati- en Olifantsrivier voor. Tussen die Olifants- en Blyderivier tot aan die hange van die Drakensberge is daar 'n redelike digte bevolking van rooibokke en koedoes met slegs 'n paar sebras maar geen wildebeeste nie.

Rooibokke, koedoes, wildebeeste en sebras word tussen die Olifants- en Sabierivier, oos van die Drakensberge, in redelike digte konsentrasies aangetref. In hierdie gebied is daar twee uitstaande dele waar wild baie volop is en waar die vyf wildsoorte op hul digste voorkom. Hierdie dele is die „ Sabi-Sand Wildtuin " en die sentrale deel wat aan die Nasionale Krugerwildtuin grens.

Tussen die Sabie- en Krokodilrivier is wild maar baie beperk. (Om verwarring te voorkom moet hier net genoem word dat daar twee Krokodilriviere in Transvaal is. Een is in die Rustenburgse distrik terwyl die ander in die Barberton-Nelspruit gebied voorkom en dit is laasgenoemde rivier waarna hier verwys word.) Suid van die Krokodilrivier tussen die grense van die Nasionale Krugerwildtuin, Swasieland en Portugees-Oos-Afrika is daar dele waar digte bevolkings rooibokke ėn koedoes met klein troppies wildebeeste en sebras aangetref word.

Suid van Swasieland in die strook tussen Natal en Swasieland, d.w.s. in die vallei van die Pongolarivier, is daar nog dele waar rooibokke volop is met enkele koedoes maar geen sebras of wildebeeste kom hier voor nie.

In die sentrale Transvaal in die valleie van die Olifants- en Pienaarsrivier word rooibokke en koedoes aangetref met digte konsentrasies in 'n paar kolle. Hier vind mens egter geen wildebeeste, sebras of waterbokke nie.

DIE · VERSPREIDING · VAN · WILD
THE · DISTRIBUTION · OF · GAME IN · TRANSVAAL.
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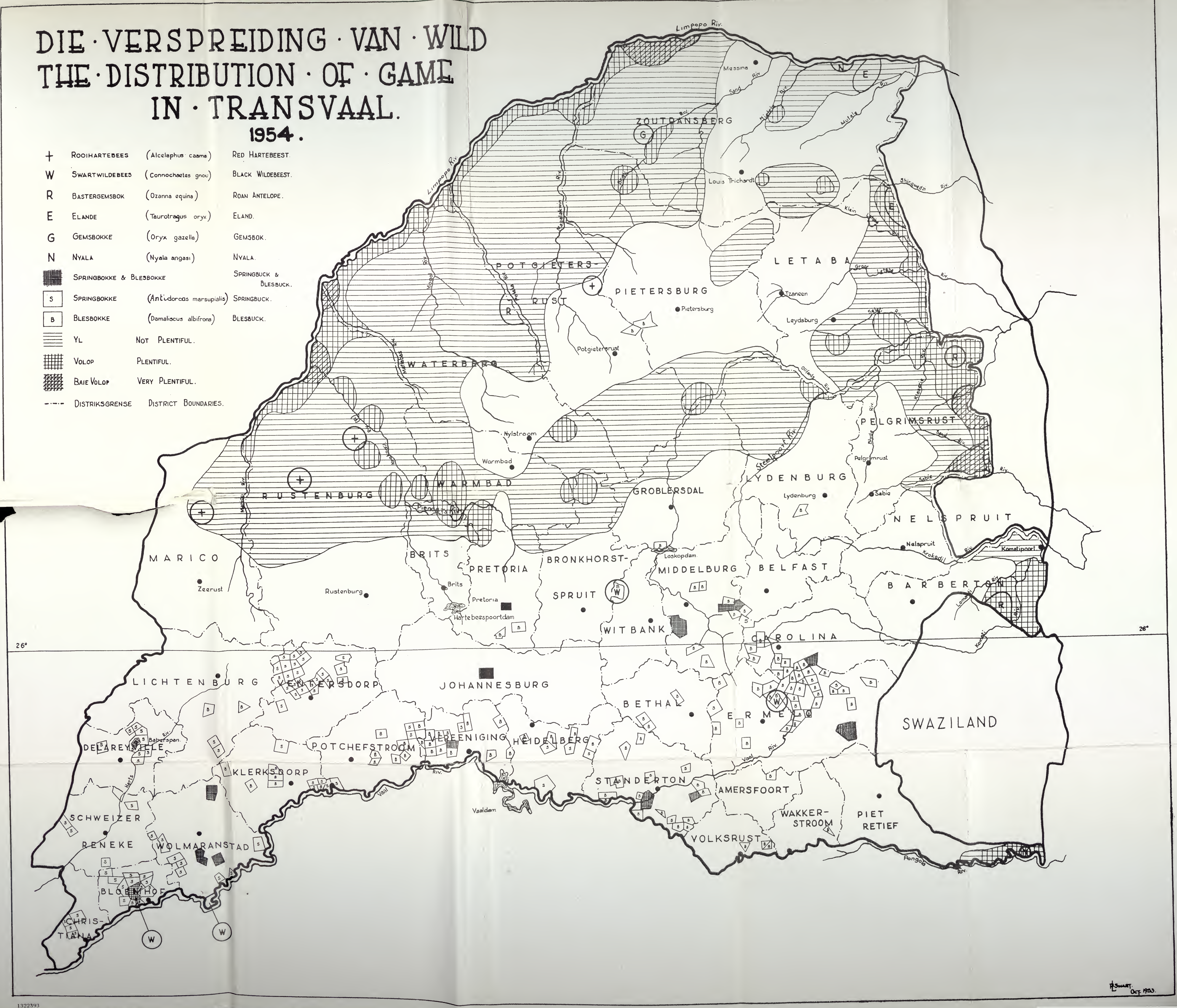

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In the Letaba District Giraffe are sparsely distributed as far north as the Selati River and are very rarely encountered north of this river and never north of the Letaba River. Their range is, therefore, limited to the area between the Letaba River in the north, the Sabie River in the south, the Drakensberg Range in the west and the boundary of the Kruger National Park in the east.

As Giraffes wander around extensively it is difficult to determine their number with accuracy but it may be stated that they are found in herds up to 40 in number in the areas where they are most densely distributed.

II.

1. Owing to the fact that agricultural pursuits extended from the great centres in the south and central parts of the Transvaal to the areas northwards, eastwards and westwards it must also follow that game diminished according to this pattern. The areas in the vicinity of the boundaries were the last to become populated and therefore the most game is left in these parts.

2. The fact that the whole western and northern boundary north of the Marico river consists of rivers is in itself an attraction for game. It therefore follows that more game will be encountered on the boundary under normal circumstances than elsewhere. The same applies to the eastern boundary which also forms the common boundary of the Kruger National Park.

The hatched area on the map is a reflection of the two abovementioned facts and shows more or less the distribution of the principal game species of the Lowveld or Bushveld, i.e. Kudu, Impala, Blue Wildebeest, Zebra and Waterbuck.

Before dealing separately with each species in this category it is advisable that the hatched areas on the chart be discussed in general.

Study the chart commencing in the west and working clockwise to the north and eastwards along the Limpopo River, thence south along the Kruger National Park boundary and lastly the central area.

Commencing in the west where the Marico River forms the boundary of the Transvaal, Impala and Kudu are encountered along the river together with a few Waterbuck northwards to the Crocodile River. Further inland game is sparsely distributed except for a few regions along the Crocodile River where there are fairly intensive concentrations of Impala—thanks to the protection of this species over a long period. Blue Wildebeest and Zebra are virtually non-existent south of the Crocodile River.

North of the Crocodile River along the boundary and particularly at the confluence of the Marico and Crocodile Rivers, Impala and Kudu occur in fairly large numbers but thin out further inland where they flourish only on a number of farms under strict protection. In this area Zebra are also encountered in small numbers on a number of farms together with very sparsely distributed Wildebeest.

In the Waterberg, Potgietersrus and Pietersburg Districts, Impala are encountered, Wildebeest and Waterbuck are scarce and Zebra occur only in small numbers, Kudu maintain an even density comparable to the other districts in which that species does occur. Along the boundary these species are more plentiful than further inland except for a number of farms where all five species have been protected.

From the Magalakwin River along the boundary of the Transvaal, Impala, Wildebeest, Zebra, Kudu and Waterbuck increase in number to approximately the northernmost turn of the Limpopo River, then diminish

Waar daar geen wild op die bygaande kaart aangemerk is nie, kan met veiligheid aangeneem word dat steenbokke en duikers in 'n mindere of meerdere mate aangetref sal word behalwe in die nabyheid van dorpe of stede.

(*a*) Die Koedoe (*Strepsiceros strepsiceros*)

Van die groter wildsoorte is die koedoe die egaligste versprei. Hy kom feitlik in alle bosveld- en laeveld-dele behalwe in die nabyheid van dorpe en stede voor. Die koedoe is 'n baie beweeglike bok en kan in een nag baie myle ver beweeg. 'n Gewone omheining is vir hom geen hindernis nie. As gevolg van hierdie beweeglikheid is hy nie van nabygeleë waters afhanklik nie en word hy sowel binnevelds as langs riviere aangetref. Hulle kan vandag op een plaas en môre op 'n plaas tien myl verder wees—veral in dele waar swaar op hulle gejag word—met die gevolg dat slegs 'n algemene beskrywing van hul verspreiding en digtheid gegee kan word. Daar is egter dele in Transvaal waar hulle meer volop as in andere is.

In die binneveld van die westelike Soutpansbergse distrik op die sandveld van die boloop van die Brakrivier word koedoes in troppe van 20 en meer op sekere plase gevind. Dieselfde geld vir die oostelike Pelgrimsrusse disitrik, maar skynbaar slegs in daardie gedeeltes waar hulle nie baie gejag word nie. As gevolg van die bergagtige topografie wat sigself tot die beskerming van hierdie wildsoort leen, is koedoes redelik volop in die Lydenburgse distrik. Omdat Swarthaak (*A. detinens*) as gevolg van sy feitlik ondeurdringbaarheid die jag baie bemoeilik maar terselfdertyd goeie wyding verskaf, word baie koedoes in die Nylstroom-Potgietersrusgebied aangetref.

Om te veralgemeen, kan beweer word dat daar van nul tot tien koedoes op 'n gemiddelde plaas van 3,000 morg kan wees en dié getal kan selfs so hoog as sestig styg in die gemelde dele waar hulle volop voorkom.

(*b*) Die Rooibok (*Aepyceros melampus*)

Beginnende aan die westekant, word rooibokke vanaf noord van die Maricorivier langs die hele westelike en noordelike grens en dan suidwaarts langs die grens van die Nasionale Krugerwildtuin sover as die Sabierivier en dan weer suid van die Krokodilrivier tussen die Nasionale Krugerwildtuin, Swasieland en die grens van Portugees-Oos-Afrika en suid van Swasieland in die Pongolariviervallei aangetref.

As gevolg van mynbedrywigheid kom daar geen rooibokke in die gebied langs die grens in die omgewing van Messina voor nie.

Tussen die Sabie- en Krokodilrivier is daar Naturelletrust-gronde waarop die Naturelle landbou beoefen en in hierdie gebied is daar geen of baie min rooibokke te vinde.

In die Rustenburgse distrik is die verspreiding baie kollerig. Die digste bevolking is in die boloop van die Krokodilrivier met die plase Drielaagte en Uitduiker as middelpunt. Die digtheid hier is ongeveer een rooibok per 5 of 6 morge met 'n vermindering tot 1 per 10 morge. In die ander dele van die Rustenburgse distrik waar wild as „ volop " op die kaart aangetoon word, is die digtheid van rooibokke ongeveer 1 per 10 morge behalwe in die gebied waar die Marico- en Krokodilrivier saamvloei asook by die samevloei van die Matlabas- en Krokodilrivier waar die digtheid ongeveer 1 per 7 of 8 morge is. In die res van die distrik is rooibokke maar ylverspreid en die digtheid sal van nul tot 50 rooibokke per plaas van 3,000 morge wissel.

rapidly towards Messina where little or no game is found. There is, however, one spot along the river where the population is very dense, consisting primarily of Impala. Waterbuck and Kudu are also plentiful with a fair sprinkling of Zebra and Wildebeest. Further inland, in the same region, there are a number of farms densily populated, with game as a result of strict protection.

East of Messina, Impala and Kudu are encountered in increasing numbers along the banks of the Limpopo River. With rare exceptions Wildebeest and Zebra are not found here. The inland veld of this area is very sparsely populated and generally game is very scarce except for a few farms where protective measures have been enforced; these farms stand out as game oases in a gameless desert. Kudu, Waterbuck and Impala are plentiful on these farms.

Practically no game is found along the northern boundary of the Kruger National Park. From approximately 10 miles north of the Shingwidsi River, along the boundary, game increases southwards with reasonably dense distributions of Impala, Kudu, Wildebeest, Zebra and Waterbuck between the Shingwidsi and Letaba Rivers.

As a result of intensive farming activities along the Letaba River the game population is already very sparse with the exception of a portion of the Letaba directly adjoining the Kruger National Park.

Between the Letaba and Olifants Rivers game is considerably depleted with the densest remaining concentrations along the Selati and Olifants Rivers. Between the Olifants and Blyde Rivers up to the slopes of the Drakensberg range there is a reasonably dense population of Impala and Kudu, with a few Zebra and no Wildebeest.

Impala, Kudu, Wildebeest and Zebra are encountered in a fairly dense population in the area between the Olifants and Sabie Rivers, east of the Drakensberg range. In this area there are two marked regions where game is very plentiful and where the densest populations of the five species exist, i.e. in the "Sabi-Sand Wildtuin" and in the central portion adjoining the Kruger National Park.

Between the Sabie and Crocodile Rivers (*Note* there are two Crocodile Rivers in the Transvaal, one in the Rustenburg District and the other in the Barberton-Nelspruit Districts; the latter is referred to now) the number of game is extremely limited.

South of the Crocodile River, between the borders of the Kruger National Park, Swaziland and Portuguese East Africa, areas densely populated by Impala and Kudu together with small herds of Wildebeest and Zebra are found.

South of Swaziland in the belt between Natal and Swaziland, viz. in the valley of the Pongola River, there are still areas where Impala are plentiful with a few Kudu and no Zebra or Wildebeest.

Impala and Kudu are found in the central Transvaal in the Olifants and Pienaars River valleys with dense concentrations in a few regions, but no Wildebeest, Zebra or Waterbuck occur.

In the area marked on the accompanying chart as having no game, it can safely be assumed that Steenbuck and Duiker will be found in varying numbers except, of course, in the vicinity of towns and large centres.

In die Waterbergse distrik is rooibokke ylverspreid met 'n gemiddelde digtheid van 0-50 per plaas. By die samevloei van die Matlabas- en Krokodilrivier, op die plase Tweeriviere en Zetland is die digtheid ongeveer 1 rooibok per 7 of 8 morge met 'n gemiddelde digtheid van 1 rooibok per 12 morge op die rivierplase langs die grens. Nie ver van Nylstroom nie, aan die oostekant met die plaas Varkenskuil as middelpunt, is daar 'n deel waar rooibokke nog redelik volop is met 'n digtheid van ongeveer een rooibok per 12 morge.

In die Potgietersrus- en Pietersburgdistrikte is hulle ylverspreid met 'n paar uitsonderings op die Magalakwinrivier waar die digtheid ongeveer 1 per 15 morge is. Uitsonderings in die Pietersburgse distrik is die plase In der Mark met 'n digtheid van ongeveer 1 per 5 morge en Adriaansdraai en Taaiboschspruit met 'n digtheid van 1 rooibok per 8 morge. Oor die algemeen het rooibokke op die meeste plase in hierdie twee distrikte òf verdwyn òf die getalle is reeds baie gering.

In die Soutpansbergse distrik is hulle meer volop in die westelike deel, met die digste verspreiding langs die Limpoporivier, veral op die plase Rhodesdrift, Tuscanen, Den Staat, Little Muck, Samaria en Skutwater waar die digtheid 1 rooibok per 4 morge op die plase Den Staat en Skutwater is en afneem tot 1 rooibok per 10 morge op die res van gemelde plase. In die oostelike deel van die distrik is daar slegs 'n paar plase, onder andere Vygeboomspruit, Weltevreden en Schuinshoogte, waar rooibokke voorkom en aan streng beskerming onderhewig is. Hierdie deel het 'n digte Naturellebevolking en eienaars het groot moeilikheid om beskermingsmaatreëls toe te pas. Soutpansbergdistrik het meer rooibokke as die voorafgemelde distrikte en alhoewel die gemiddelde digtheid van 0 tot 50 rooibokke per plaas ook hier geld, is hier weer meer plase waarop rooibokke aangetref word.

In die Letabadistrik, met 'n paar uitsonderings waar die digtheid ongeveer 1 rooibok per 12 morge is, is hierdie wildsoort maar ylverspreid. Die gemiddelde digtheid is min of meer 0-50 per plaas.

Die Pelgrimsrusdistrik is goed met rooibokke bevolk en digthede van 1 per 3 morge word op sekere plase langs die Nasionale Krugerwildtuingrens sowel as in die „Sabi-Sand Wildtuin" aangetref. Oor die algemeen is rooibokke in die verhouding van 0-150 per plaas verspreid (wat hoër is as in enige ander distrik) behalwe in die deel wes van die Drakensberg-eskarpement en tussen die eskarpement en die grootpad vanaf die plaas Maviljan tot by die Klaserierivier aan die oostekant waar geen rooibokke voorkom nie.

Nelspruitdistrik het min of geen rooibokke nie omdat dié deel baie intensief ontwikkel is en die plase in klein dele opgesny is.

In die Barbertonse distrik word rooibokke in klein getalle aangetref behalwe op die plaas Three Sisters en 'n paar plase in die nabyheid van Komatipoort en in die Squamansgebied waar hulle meer volop voorkom. Oor die algemeen is die digtheid baie laag as gevolg van die intensiewe landbou-ontwikkeling.

In die Pongolariviervallei suid van Swasieland kom rooibokke voor, maar ook in klein getalle. Hierdie deel word nou in 'n suikerproduserende gebied ontwikkel.

Rooibokke kom ook in die Pretoria-, Warmbad-, Bronkhorstspruit-, Groblersdal- en Lydenburgdistrikte voor. Die digtheid is egter nie hoog nie en daar is baie minder plase waarop hulle voorkom as in die distrikte voorheen gemeld. Digthede van 1 rooibok per 12 morge word egter bereik.

(*a*) THE KUDU (*Strepsiceros strepsiceros*)

Of the larger species of game the Kudu is the most evenly distributed. It is found in practically all Bushveld and Lowveld regions except in the vicinity of towns and cities. The Kudu is a very mobile antelope and may move many miles a night, an ordinary fence being no obstacle. As a result of its mobility it is not dependent on nearby streams and is thus found inland as well as along rivers. They can be on one farm today and on another 10 miles away tomorrow (especially in areas where they are hunted heavily). In consequence it is possible to give only a general description of their distribution and density. However, there are localities in the Transvaal in which they are more plentiful than in others. In the middleveld of the Western Soutpansberg District, on the sandveld in the upper reaches of the Brak River, Kudu can be found in groups of 20 and more on certain farms. The same applies to the eastern Pilgrim's Rest District but apparently only where they are not much hunted. Kudu are fairly plentiful in the Lydenburg District as a result of the mountainous topography which lends itself to the effective protection of this species. Because Swarthaak bush (*A. detinens*) affords good browsing and is practically impenetrable, making hunting very difficult, many Kudu are found in the area of Nylstroom and Potgietersrus.

To generalise, it may be stated that on an average farm of 3,000 morgen there might be from nil to ten Kudu in the areas where they occur and this figure could go as high as 60 in the mentioned areas where they are plentiful.

(*b*) THE IMPALA (*Aepyceros melampus*)

Commencing on the western side, north of the Marico River, Impala are found along the entire western and northern boundaries, southwards along the western boundary of the Kruger National Park as far as the Sabie River, south of the Crocodile River between the Kruger National Park, Swaziland and the border of Portuguese East Africa and south of Swaziland in the Pongola River valley.

The area along the boundary in the vicinity of Messina in the north is devoid of Impala as a result of mining activities. Between the Sabie and the Crocodile Rivers there is very little or no Impala as a result of agricultural pursuits by Natives on Native Trust land.

In the Rustenburg District the distribution is very patchy. It is densest in the high reaches of the Crocodile River with the farms Drielaagte and Uitduiker as the focal point. The density in this region is approximately 1 Impala per 5 or 6 morgen, decreasing to 1 per 10 morgen. In the other areas in the Rustenburg District marked on the map as "plentiful" the density is about 1 per 10 morgen except for the areas at the confluence of the Marico and Crocodile Rivers and of the Matlabas and Crocodile Rivers where the density is about 1 per 7 or 8 morgen. In the rest of the district Impala are sparsely distributed and the density will range from 0-50 Impala per farm of 3,000 morgen.

In the Waterberg District Impala are sparsely distributed with a general density of 0-50 per farm. At the confluence of the Matlabas and Crocodile Rivers on the farms Twee Riviere and Zetland the density is about 1 Impala per 7 to 8 morgen with an average of 1 per 12 morgen on the river farms on the border. Not far from Nylstroom on the eastern side with the farm Varkenskuil as focal point, there is still a region of fair density with approximately 1 Impala per 12 morgen.

Wildebeeste—„ Sabie-Sand Wildtuin ”. Photo/Foto: H. D. Abraham.

Impala are sparsely distributed in the Potgietersrus and Pietersburg Districts with a few exceptions on the Magalakwin River where the density is more or less 1 Impala per 15 morgen. In the Pietersburg District the exceptions are the farm In der Mark with a density of 1 per 5 morgen and the farms Adriaansdraai and Taaiboschspruit with a density of about 1 Impala per 8 morgen. Generally most of the farms in these two districts are denuded of Impala or the numbers are fairly low.

In the Soutpansberg District Impala are more plentiful in the west with the densest distribution on the Limpopo River on the farms Rhodesdrift, Tuscanen, Den Staat, Little Muck, Samaria and Skutwater where the density is 1 Impala per 4 morgen on Den Staat and Skutwater diminishing to 1 per 10 morgen on the remaining of these farms. In the eastern part of the district very few Impala occur and they thrive only on a few farms where they are very strictly protected, i.e. Vygeboomspruit, Weltevreden and Schuinshoogte. The area is highly developed and protection by owners is difficult. Soutpansberg District, especially the western part, has more Impala than the aforementioned districts. Although the average of 0-50 Impala per farm also applies to this district there are more farms on which Impala do occur.

With a few exceptions where the density is approximately 1 per 12 morgen, Impala are sparsely distributed in the Letaba District. The average density is more or less 0-50 Impala per farm.

The Pilgrim's Rest District is well populated with Impala and densities of 1 per 3 morgen may be encountered on some farms along the boundary of the Kruger National Park and in the " Sabi-Sand Wildtuin ". Generally, Impala are distributed in the ratio of 0-150 Impala per farm (which is higher than in any other district), except in the area west of the Drakensberg escarpment and between the escarpment and the main road from the farm Maviljan to the Klaserie River on the eastern side, where no Impala occur.

Nelspruit District has very little or no Impala because this area is highly developed and farms are cut up into small portions. In the Barberton District Impala are found in small numbers except on the farm Three Sisters, a few farms in the vicinity of Komatipoort and also in the Squaman's area where they are more plentiful. The density generally is very low because of intensive agricultural development.

In the Pongola River valley south of Swaziland Impala occur but also in small numbers. This part is being developed as a sugar producing area. Impala also occur in the Pretoria, Warmbaths, Bronkhorstspruit, Groblersdal and Lydenburg Districts. The density is, however, not high and the farms on which they do occur are far less than in the previously mentioned districts. Densities as high as 1 per 12 morgen are, however, reached.

(*c*) BLUE WILDEBEEST (*Gorgon taurinus*)

In the Rustenburg District Wildebeest are almost extinct with only a few specimens on a limited number of farms.

In the Waterberg, Potgietersrus and Pietersburg Districts Wildebeest are scarce, but occur in greater numbers along the boundary river although nowhere in great herds. In the northern part of western Soutpansberg District Wildebeest are more plentiful but even there they are not found in great numbers and a density of 1 Wildebeest per 40 morgen can be considered high. In the eastern Soutpansberg District and southwards along the boundary of the Kruger National Park, as far as the Letaba River, Wildebeest occur but not in great numbers—a herd of 30 head being large.

(*c*) DIE BLOUWILDEBEES (*Gorgon taurinus*)

In die Rustenburgse distrik, noord van die Maricorivier, het wildebeeste feitlik verdwyn en daar kom slegs 'n paar van hierdie diere op 'n beperkte aantal plase voor.

In die Waterberg-, Potgietersrus- en Pietersburgdistrikte is wildebeeste skaars maar langs die grensrivier kom hulle in groter getalle voor, alhoewel nêrens in groot troppe nie.

Wildebeeste is meer volop in die noordelike deel van die westelike Soutpansbergdistrik as in die reeds genoemde distrikte, maar selfs hier word hulle nie in groot getalle aangetref nie. 'n Digtheid van 1 wildebees per 40 morge kan as hoog beskou word. In die oostelike Soutpansbergdistrik en suidwaarts langs die grens van die Nasionale Krugerwildtuin, sover suid as die Letabarivier, kom wildebeeste voor maar nie in groot getalle nie. 'n Trop van 30 stuks kan as groot beskou word.

Daar is 'n eweredige verspreiding van wildebeeste in die Letabadistrik maar ook hier kom hulle nie volop in enige deel voor nie. Die gemiddelde digtheid is ongeveer een wildebees per 30 morge.

In die Pelgrimsrusdistrik is wildebeeste volop en baie digte konsentrasies word in die sentrale deel aangrensende aan die Nasionale Krugerwildtuin en in die „ Sabie-Sand Wildtuin " aangetref. Troppe van 200-300 word dikwels in hierdie twee dele gesien. Dit dien ook gemeld te word dat wildebeeste in hierdie dele gedurende sekere tye van die jaar baie rondtrek en hulle kan 'n groot aantal myle per dag migreer.

In hierdie distrik is daar geen wildebeeste tussen die Olifants- en Blyderivier, wes van die Drakensberg-eskarpement en tussen die eskarpement en die grootpad vanaf die plaas Maviljan tot by die Klaserierivier in die oostelike kant nie. In die res van die distrik is daar ongeveer 20-100 wildebeeste per plaas, wat 'n hoër aantal as in enige ander distrik is.

Suid van die Sabierivier word wildebeeste in die Squamansgebied langs die noordelike Swasieland-grens aangetref. Die aantal in hierdie gebied sal egter nie 300 oorskry nie.

In Sentraal- en Suid-Transvaal kom geen wildebeeste voor nie.

(*d*) DIE TRANSVAALSE SEBRA (*Equus burchellii*)

Sebras is skaars in die Rustenburg-, Waterberg-, Potgietersrus- en Pietersburgdistrikte en kom in klein getalle op slegs 'n paar plase voor.

Hulle vermeerder effens in die Soutpansbergse distrik en daar is ook meer plase met sebras op as in die eersgenoemde distrikte, dog hulle is hier nêrens volop nie.

Suidwaarts langs die grens van die Nasionale Krugerwildtuin word al meer sebras aangetref. Tussen die Klein-Letaba- en Olifantsrivier is daar baie plase waarop sebras aangetref word maar slegs 'n paar van hierdie plase sal 100 stuks haal. Meestal strek die getalle tussen 5 en 30 sebras per plaas.

Daar word groot konsentrasies sebras in die Pelgrimsrusdistrik en meer besonder in die sentrale deel wat aan die Nasionale Krugerwildtuin grens, sowel as in die „ Sabie-Sand Wildtuin ", aangetref. Troppe van tot 200 kan in hierdie dele gesien word.

Wes van die eskarpement en tussen die eskarpement en die grootpad vanaf die plaas Maviljan en die Klaserierivier aan die oostekant is daar geen sebras nie. Tussen die Blyde- en Olifantsrivier is daar slegs 'n paar. Op die res van die plase in hierdie distrik kom hulle in getalle van 10 tot 100 per plaas voor.

In the Letaba District Wildebeest are more evenly distributed but are not plentiful in any particular locality, the average density being about 1 Wildebeest per 30 morgen.

In Pilgrim's Rest District Wildebeest are plentiful and very dense populations are encountered in the central part adjoining the Kruger National Park and also in the " Sabi-Sand Wildtuin ". Herds of 200-300 are often seen in these two areas. It must also be mentioned that Wildebeest in this area migrate many miles a day during certain periods of the year. In this district there are no Wildebeest in the areas between the Blyde and Olifants Rivers, west of the Drakensberg escarpment and between the escarpment and the main road from the farm Maviljan to the Klaserie River on the eastern side. In the remainder of the district the average number of Wildebeest per farm is about 20-100, which is higher than in any other district. South of the Sabie River Wildebeest are found in the Squamans area on the northern boundary of Swaziland. The total number in this area will not exceed the 300 mark. In the Central and Southern Transvaal no Wildebeest occur.

(*d*) THE TRANSVAAL ZEBRA (*Equus burchellii*)

Zebra are scarce in the Districts of Rustenburg, Waterberg, Potgietersrus and Pietersburg where they occur only on a few farms and in small numbers. In the Soutpansberg District there is a slight increase. More farms there have Zebra than in the previously mentioned districts, but nowhere are they plentiful.

Along the boundary of the Kruger National Park Zebra increase southwards. Between the Small Letaba and the Olifants Rivers there are many farms with Zebra but only a few of these farms attain the 100 mark. The numbers usually range from 5 to 30 Zebras per farm.

In the Pilgrim's Rest District there are large concentrations in the central area adjoining the Kruger National Park and in the " Sabi-Sand Wildtuin " herds of up to 200 can be seen. West of the escarpment and between the escarpment and the main road from Maviljan to the Klaserie River on the eastern side there are no Zebra. Between the Blyde and Olifants Rivers there are only a few. On the remaining farms in this district, Zebra occur in numbers of 0-100 per farm.

Zebra occur in small numbers on a few farms in the Barberton district. There are no Zebra in the Central and Southern Transvaal.

(*e*) WATERBUCK (*Kobus ellipsiprimnus*)

This species is fairly rare in the districts of Rustenburg, Waterberg, Potgietersrus and Pietersburg where it occurs only on a few farms and in small numbers. In the western Soutpansberg District on a few farms with the focal point at the confluence of the Limpopo and Shasi Rivers, Waterbuck are plentiful and groups up to 20 can be seen. On the farms Vygeboomspruit, Weltevreden and Schuinshoogte in the eastern Soutpansberg District, Waterbuck still occur because of the strict protection afforded by the owners. South of the Shingwidsi to the Letaba River, Waterbuck occur but not in great numbers. On the southern banks of the Letaba River there are a few farms where Waterbuck are plentiful, especially on the Hans Merensky Nature Reserve.

Apart from the central area adjoining the Kruger National Park and the " Sabi-Sand Wildtuin ", Waterbuck are fairly scarce in the Pilgrim's Rest District. In the two above-mentioned areas Waterbuck can be seen

In Barberton distrik kom hulle in klein getalle op slegs 'n paar plase voor.

In Sentraal- en Suid-Transvaal kom geen sebras voor nie.

(*e*) DIE WATERBOK (*Kobus ellipsiprimnus*)

Hierdie wildsoort is skaars in die Rustenburg-, Waterberg-, Potgietersrus- en Pietersburgdistrikte en kom slegs in klein getalle op 'n paar plase voor. In die westelike Soutpansbergse distrik is waterbokke volop op 'n paar plase, met die samevloei van die Shasi- en Limpoporivier as middelpunt, en troppe tot 20 in getal word hier gevind. As gevolg van die strenge beskerming deur die eienaars kom waterbokke nog op die plase Vyeboomspruit, Weltevreden, en Schuinshoogte in die westelike Soutpansberge voor. Suid van die Shingwidsirivier tot by die Letabarivier kom waterbokke wel voor, maar nie in groot getalle nie. Op die suidelike oewer van die Letabarivier is daar 'n paar plase, waaronder veral die Hans Merensky-natuurreservaat, waarop waterbokke volop is.

Met uitsondering van die sentrale deel wat aan die Nasionale Krugerwildtuin grens en die „ Sabie-Sand Wildtuin " is waterbokke in die Pelgrimsrus distrik taamlik skaars. In die laasgenoemde twee dele kan hulle in troppe van tot 20 stuks gesien word. Suid van die Sabierivier het waterbokke min of meer verdwyn en dit geld ook vir Sentraal- sowel as Suid-Transvaal.

(*f*) DIE BOSBOK (*Tragelaphus scriptus*)

Die verspreiding van hierdie wildsoort kom oor die algemeen met die verspreiding van waterbokke ooreen met die uitsondering dat bosbokke verder binneslands en verder suid voorkom. Hulle kom ook suid van die Sabierivier in die Krokodil-Komati-Lomatiriviersisteem en op die Pongolarivier suid van Swasieland voor. Bosbokke word ook op die oostelike hoëveld in die Lydenburg-, Belfast-, Carolina- en Middelburgdistrikte aangetref. In Sentraal-Transvaal kom hulle langs die riviere en in die klowe voor.

Die digste bevolking in Transvaal is op die oewers van die Limpoporivier in die omgewing van die mees noordelike boeg van die rivier wes van Messina. Bosbokke word nie op die westelike hoëveld aangetref nie.

(*g*) DIE STEENBOK (*Raphicerus campestris*)

Hierdie wildsoort kom feitlik oral in Transvaal voor uitgesonderd in die nabyheid van groot stede en dorpe en word in die afgelope tyd baie streng beskerm.

Steenbokke kom egter nêrens in groot getalle voor nie.

(*h*) DIE GRYSDUIKER (*Sylvicapro grimmia*)

Duikers word feitlik oral in Transvaal aangetref waar die nodige bosse bestaan. Hulle geniet streng beskerming. Soös die steenbok is hierdie wildsoort ook baie aanpasbaar en floreer net so goed op die koue hoë plato as in die warm bosveld of laeveld.

(*i*) DIE ROOIDUIKER OF SOEMPI (*Cephalophus natalensis*)

Hierdie wildsoort kom in die natuurlike sowel as aangeplante bosse op die hange van die Drakensberg- en Soutpansbergreekse voor. Alhoewel hulle skaars is, geniet hulle 'n sekere mate van natuurlike beskerming as gevolg van beide die onbekombaarheid van hul habitat en hul natuurlike skuheid.

in groups of up to 20. South of the Sabie River Waterbuck have more or less disappeared and this applies to the Central and Southern Transvaal as well.

(*f*) THE BUSHBUCK (*Tragelaphus scriptus*)

The distribution of this species of game in many respects coincides with that of the Waterbuck with the exception that Bushbuck are found further inland and further south. They are also encountered south of the Sabie in the Crocodile-Komati-Lomati system and on the Pongola River south of Swaziland. Bushbuck are also found on the eastern Highveld in the Lydenburg, Belfast, Carolina and Middelburg Districts. In the Central Transvaal they frequent the river banks and kloofs.

The densest population in the Transvaal is on the banks of the Limpopo River in the neighbourhood of its most northerly turn west of Messina. On the western Highveld no Bushbuck are found.

(*g*) STEENBUCK (*Raphicerus campestris*)

This species is found practically everywhere in the Transvaal, except in the vicinity of large cities and towns and has lately been rigorously protected.

Nowhere are Steenbuck found in large numbers.

(*h*) GREY DUIKER (*Sylvicapra grimmia*)

Duiker are found practically everywhere in the Transvaal where the necessary bush exists and they enjoy striet protection. Like the Steenbuck this species is also very adaptable and thrives on the cold, high plateau as well as in the warm Bushveld or Lowveld.

(*i*) RED DUIKER OR ZUMPI (*Cephalophus natalensis*)

This species is indigenous to the natural bush and afforested areas on the slopes of the Drakensberg and the Soutpansberg ranges. Though scarce, it enjoys a certain measure of natural protection owing to the inaccessibility of its habitat and to its natural timidity.

The Department of Forestry contributes much towards the preservation of this species.

(*j*) THE ORIBI (*Ourebia ourebi*)

Oribi, very rare in the Transvaal, are encountered on farms only where they have found sanctuary over a long period. On a few farms in the eastern Highveld, in the vicinity of Ermelo, Amsterdam and Piet Retief they are still fairly numerous and this applies in a lesser degree to a few farms in the Middelburg-Witbank area as well. In the Krugersdorp District they are found on a single farm where they enjoy strict protection.

(*k*) THE KLIPSPRINGER (*Oreotragus oreotragus*)

This species is found in small numbers north of the 26th latitude in the hills and mountain ranges. It is in danger of becoming extinct because, being a tame type of antelope, it is easily hunted with the aid of dogs. The largest population is concentrated in the Drakensberg Range.

(*l*) THE REEDBUCK (*Redunca arundinum*)

Reedbuck being easy prey to the hunter are very scarce. North of the Marico River in the west and the Crocodile River in the east they live only on farms where they find sanctuary and even on these their numbers are very low.

Die Departement van Bosbou dra baie by tot die beskerming van hierdie wildsoort.

(*j*) DIE OORBIETJIE (*Ourebia ourebi*)

Oorbietjies is baie skaars in Transvaal en word slegs op plase aangetref waar hulle oor 'n lang tydperk beskerming geniet het. Op 'n paar plase op die oostelike hoëveld in die omgewing van Ermelo, Amsterdam en Piet Retief kom hulle nog in redelike getalle voor en in 'n mindere mate geld dit ook vir die Middelburg-Witbankgebied. In die Krugersdorpdistrik word hulle op 'n enkele plaas aangetref waar hulle streng beskerming geniet.

(*k*) DIE KLIPSPRINGER (*Oreotragus oreotragus*)

Hierdie wildsoort word in klein getalle noord van die 26ste breedtegraad in die koppe en bergreekse aangetref. Omdat dit so 'n mak wildsoort is en maklik met honde gejag kan word, staan dit in gevaar om uitgeroei te word.

Die grootste bevolking is in die Drakensbergreeks gekonsentreer.

(*l*) DIE RIETBOK (*Redunca arundinum*)

Omdat rietbokke 'n maklike prooi vir die jagter is, is hulle baie skaars. Hulle kom noord van die Maricorivier in die weste en die Krokodilrivier in die ooste, op plase waar hulle beskerming geniet, voor en selfs op sulke plase is die getalle baie laag.

(*m*) DIE ROOIRIBBOK (*Redunca fulvorufula*)

Hierdie wildsoort kom redelik algemeen in bergagtige dele van Transvaal voor. As gevolg van die topografie van die Wes-Transvaal is hulle in daardie deel afwesig. Hulle word in die Drakensberg- en Soutpansbergreekse asook in sekere dele van die Rustenburg- en Waterbergdistrikte aangetref. Hulle kom egter merendeels in die Middelburgse en Lydenburgse distrikte voor.

Die rooiribbok is moeilik om te jag maar word maklik deur groenigheid aangelok.

(*n*) DIE VAALRIBBOK (*Pelea capreolus*)

Die vaalribbok is nog skaarser as die rooiribbok en hul verspreiding is baie beperk. Die grootste bevolking kom in die Lydenburgse en Pelgrimsrusse distrikte voor maar selfs hier is hulle ylverspreid.

(*o*) DIE VLAKVARK (*Phacochoerus aethiopicus*)

Die vlakvark word noordwaarts van die Maricorivier in die weste met 'n digte konsentrasie in die Rustenburgse distrik noord van die Krokodilrivier, asook in die Waterberg- en Potgietersrusdistrikte langs die westelike grens aangetref. In die Soutpansbergdistrik verminder die bevolking na die ooste. In die Letabadistrik is hulle skaars maar in die gebied tussen die Olifants- en Sabierivier vermeerder hulle weer.

Op een tydstip was vlakvarke baie skaars in die oostelike distrikte maar gedurende die laaste vyf jaar en veral in die Pelgrimsrusdistrik het hulle redelik vermeerder. In die ooste kom hulle sover suid as die Krokodilriviervallei voor dog in Sentraal-Transvaal is vlakvarke skaars.

(*m*) The Mountain Reedbuck (*Redunca fulvorufula*)

This species occurs fairly generally, in mountainous parts of the Transvaal, but owing to the topography of the Western Transvaal it is absent in that area. It is found on the eastern Highveld, the Drakensberg and Soutpansberg ranges, and also in certain regions of the Rustenburg and Waterberg Districts. The highest population occurs in the Middelburg and Lydenburg District. The species is difficult to hunt but is easily attracted by greenery.

(*n*) The Grey Rhebuck (*Pelea capreolus*)

The Grey Rhebuck is rarer than the Mountain Reedbuck and its range is very limited. The largest population is found in the Lydenburg and Pilgrim's Rest Districts, but even there they are sparsely distributed.

(*o*) The Warthog (*Phacochoerus aethiopicus*)

The Warthog is encountered northwards of the Marico River in the west, with a dense population in the Rustenburg District, north of the Crocodile River, and in Waterberg and Potgietersrus along the western boundary. In the Soutpansberg District the population diminishes towards the east. In the Letaba District they are scarce, increasing in the region between the Olifants and Sabie Rivers. At one time Warthogs were very rare in the eastern districts but have increased moderately during the last five years, particularly in the Pilgrim's Rest District. In the eastern part they occur as far south as the valley of the Crocodile river. In the Central Transvaal Warthog are scarce.

(*p*) Bushpigs (*Potamochoerus porcus*)

They are distributed along the slopes and ravines of the Drakensberg Range north of the 26th latitude, the Soutpansberg Range in the north and Waterberg in the west, as well as in the Pongola area south of Swaziland. Owing to its timidity and habitat, this species is very difficult to hunt, especially where it finds cover in rugged ravines and afforested areas.

(*q*) The Hippopotamus (*Hippopotamus amphibius*)

In the Limpopo River, north of the 23rd latitude up to where the river turns east, a few Hippopotami move to and fro. To the east they appear east of the confluence of the Njelele and the Limpopo Rivers. Here the population is more dense and groups of 10 to 15 are encountered. In the Letaba River the Hippopotamus has practically been exterminated owing to intensive agricultural pursuits, except in the extreme easterly portion where the Letaba flows into the Kruger National Park. Here there are a fair number of Hippopotami which enjoy protection. In the lower reaches of the Selati and Makoetsi Rivers there are a number of Hippopotami which migrate upwards after big rains and move towards the lower reaches and the Olifants River when the water level drops. Hippopotami frequent the Olifants River from Loskop Dam to the point where it flows into the Kruger National Park, with a dense population in the section from the OlifantsRiver Gorge (where it flows through the Drakensberg Range) to the boundary of the Kruger National Park.

In the Blyde River the population is fairly dense from the Blyde River Gorge to its confluence with the Olifants River. The Klaserie River has almost been cleared of Hippopotami as a result of their menace to agriculture.

(*p*) Die Bosvark (*Potamochoerus porcus*)

Hulle is langs die hange en lope van die Drakensbergreeks noord van die 26ste breedtegraad asook in die Soutpansbergreeks in die noorde en die Waterberge in die weste versprei. Bosvarke kom ook in die Pongolariviervallei suid van Swasieland voor.

As gevolg van hul skuheid en habitat is hierdie wildsoort baie moeilik om jag op te maak veral waar hulle skuiling in die bebosde lope en aangeplante bosse vind.

(*q*) Die Seekoei (*Hippopotamus amphibius*)

In die Limpoporivier, noord van die 23ste breedtegraad tot waar dit in 'n oostelike rigting draai, is daar 'n paar seekoeie wat heen en weer beweeg. Daarvandaan na die ooste word hulle oos van die samevloei van die Limpopo- en Njelelerivier aangetref. Hier is die bevolking digter en groepe van tien tot vyftien word teëgekom. Behalwe in die oostelike vloei van die Letabarivier waar hierdie rivier in die Nasionale Krugerwildtuin vloei en waar daar redelik baie seekoeie is wat beskerming geniet, is hierdie diere in die res van die Letabarivier, as gevolg van intensiewe landbou-aktiwiteite, feitlik uitgeroei. In die laer loop van die Selati- en Makoetsirivier is daar 'n aantal seekoeie wat met groot reëns rivier-op en in tye van droogte na die laer lope en die Olifantsrivier beweeg. Seekoeie kom in die Olifantsrivier vanaf Loskopdam tot waar dit in die Nasionale Krugerwildtuin invloei, voor. Vanaf die Olifantsrivierpoort waar dit deur die Drakensberge vloei, tot by die grens van die Nasionale Krugerwildtuin is daar 'n digte verspreiding. In die Blyderivier, vanaf die Blyderivierpoort tot by die samevloei van die Blyde- met die Olifantsrivier is die bevolking redelik dig.

In die Klaserierivier is seekoeie feitlik afwesig vanweë hul bedreiging vir landbou. Daarenteen word seekoeie in die Sabierivier vanaf naby die dorp Sabie tot waar die rivier die grens van die Nasionale Krugerwildtuin vorm, aangetref. Naby en op die grens van die Nasionale Krugerwildtuin is die bevolking dig. Dit is baie bemoedigend om op te merk dat seekoeie deur sekere eienaars op die Sabierivier beskerm word ten spyte van hul bedreiging vir die landbou. Seekoeie beweeg af-en-toe in die Sandrivier op maar daar is geen permanente trop nie. Die seekoeibevolking in die Krokodilrivier begin na aan die punt waar die rivier die suidelike grens van die Nasionale Krugerwildtuin vorm en daar is 'n redelik digte bevolking tot waar die rivier oor die Transvaalse grens gaan.

Beide die Komati- en Lomatirivier, in die gebied tussen die Swasielandgrens noordooswaarts tot by die Portugese grens, is redelik dig bevolk. Seekoeie word ook af-en-toe in die reënseisoen in die Steelpoortrivier naby sy samevloei met die Olifantsrivier aangetref.

In the Sabie River Hippopotami are found from near the town Sabie to where the river forms the boundary of the Kruger National Park. The population is dense on and near the boundary of the Kruger National Park. It is very encouraging to note that Hippopotami are being protected by some owners on the Sabie River in spite of their menace to agriculture. Intermittently Hippo appear in the Sand River, but there is no permanent herd. The Hippopotamus population in the Crocodile River begins near the point where the Crocodile forms the southern boundary of the Kruger National Park, with a fairly dense population to where it crosses the boundary. Both the Komati and the Lomati Rivers are fairly densely populated in the region between the Swaziland boundary north-eastwards to the Portuguese boundary. Occasionally in the rainy season a Hippo may appear in the Steelpoort River near its confluence with the Olifants River.

PHOTO/FOTO: W. F. Schack.

Seekoeie. Hippopotami.

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L. Steyn.

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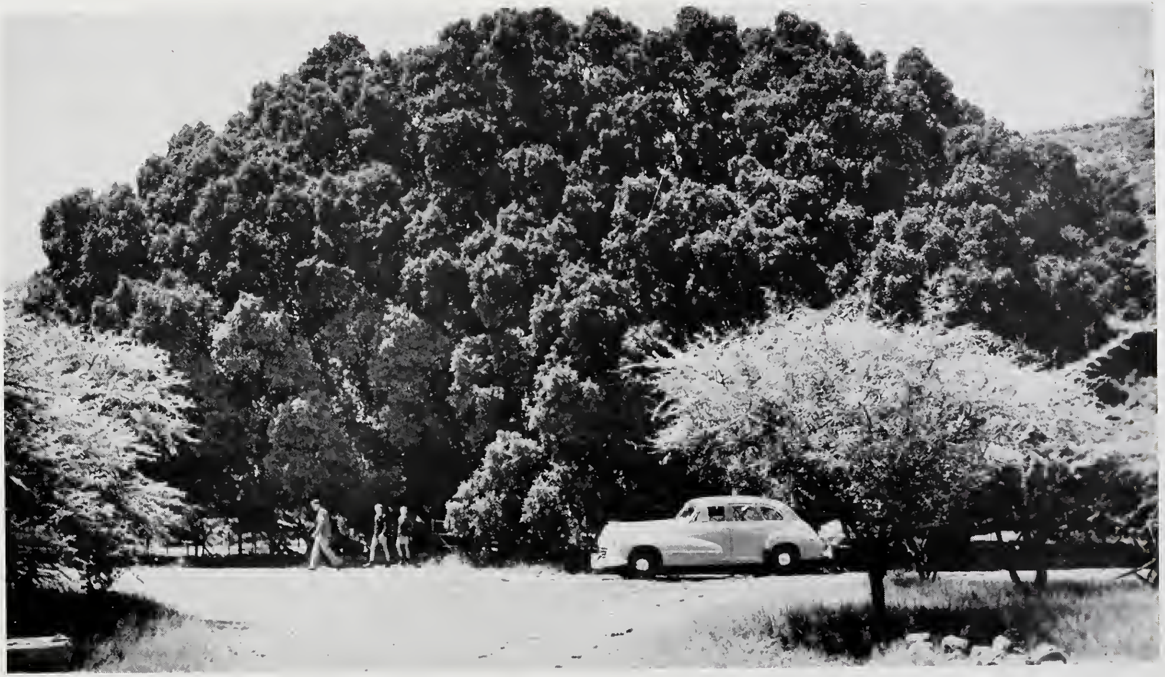

WONDERBOOM.

Vandag. Today.

DIE WONDERBOOM-NATUURRESERVAAT
THE WONDERBOOM NATURE RESERVE

INHOUD

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VOORWOORD

Kantoor van die Direkteur van Natuurbewaring,
PRETORIA.

SOMMIGE van die artikels wat in hierdie bulletin verskyn, is reeds meer as tien jaar gelede in hul oorspronklike vorm geskrywe. Die Raadgewende Komitee oor Pretoriase Reservate het herhaaldelik maar sonder sukses probeer om fondse vir die publikasie daarvan in 'n tweetalige brosjure oor die Wonderboom-natuurreservaat te verkry.

Die Afdeling Natuurbewaring van die Provinsiale Administrasie besef die waarde van 'n publikasie soos hierdie terdeë. Dit wek by oud en jonk 'n sluimerende, ingebore belangstelling in die natuur. Dit prikkel die trots van elke Pretorianer as mede-besitter van die reservaat. Die reservaat self word 'n lewende bron van kennis en genot vir die talle opvoedkundige inrigtings van die hoofstad en die hele land.

Dit is vir ons 'n voorreg om hierdie bulletin te publiseer as 'n voorbeeld van die waarde wat 'n plaaslike natuurreservaat vir die gemeenskap kan hê.

FOREWORD

Office of the Director of Nature Conservation,
PRETORIA.

SOME of the articles appearing in this bulletin were written in their original form more than ten years ago. The Pretoria Reserves Advisory Committee tried repeatedly but unsuccessfully to obtain funds for their publication in a bilingual brochure on the Wonderboom nature reserve.

The Nature Conservation Section of the Provincial Administration fully realises the value of a publication like this. In the adult and in the child it rouses a dormant, innate interest in nature. It stimulates the pride of every Pretorian as a co-owner of the reserve. The reserve itself becomes a living source of knowledge and pleasure to the numerous educational institutions of the capital and the whole country.

It is a privilege to us to publish this bulletin as an example of the value that a local nature reserve can have to the community.

GESKIEDENIS VAN DIE WONDERBOOM EN SY NATUURRESERVAAT

deur H. P. H. Behrens

(*Stedelike Skakelbeampte, Pretoria*)

„WONDERBOOM " is heelwaarskynlik een van die oudste blanke plekname wat in die Pretoria-gebied gevind word. Geskiedkundiges het sy oorsprong gevind in die dae voordat die eerste blankes hulle in hierdie deel van die Transvaal gevestig het—toe die Magaliesberg nog „ Cashan "-berg geheet het.

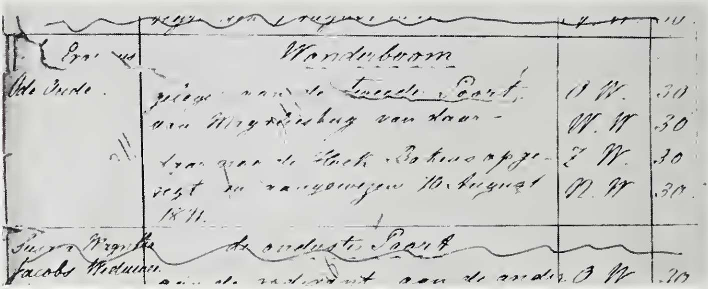
Klaarblyklik is „ Wonderboom " 'n naam wat spontaan by die Voortrekkers ontstaan het toe hulle hierdie opvallende natuurverskynsel vir die eerste maal aanskou het.

Die boom en sy omgewing het hoogswaarskynlik 'n belangrike rol gespeel in die lewe van die naturelle wat in hierdie deel van die land gewoon het voordat die blankes hulle verskyning gemaak het.

Hoe oud die boom is, weet niemand nie. Met 'n bietjie verbeelding kan mens jou voorstel hoe die Steentydperkmens in die skadu daarvan gerus het. Sy kampeerplek was by die nabygeleë terrein wat onlangs ten ooste van die boom ontdek is. Na 'n suksesvolle jagtog langs die oewers van die Apiesrivier het hierdie boom hom seker 'n ideale piekniekplek gebied.

Daar is sommige wat beweer dat die bloeddorstige Matabeleopperhoof, Moselekatse, die kalme en vreedsame atmosfeer van hierdie vrugbare vallei verstoor het toe hy sy kamp in die omgewing daarvan opgeslaan en van hier sy skrikwekkende strooptogte na die binneland uitgevoer het.

Die naam van die plaas word in geskrewe dokumente genoem nog voor die ontstaan van Pretoria. Daarin word vermeld dat L. A. en T. C. J. Erasmus die eerste eienaars van die plaas Wonderboom, toe etlike duisende morge groot, was.



Die oudste inskrywing in die Akteskantoor wat na die plaas Wonderboom verwys. Dit toon aan dat die bakens op 10 Augustus 1847 opgerig en aangewys is.

The oldest Deeds Office entry relating to the farm Wonderboom, showing that the beacons were erected and pointed out on 10th August, 1847.

HISTORY OF THE WONDERBOOM AND ITS NATURE RESERVE

by H. P. H. Behrens

(*Public Relations Officer, City Council of Pretoria.*)

" WONDERBOOM " is most likely one of the oldest European place names found in the Pretoria area. Historians have traced its origin back to the days prior to the first white men settling in this part of the Transvaal—when the Magaliesberg was still known by its original name, the " Cashan Mountains ".

Obviously " Wonderboom " was a name spontaneously given by the pioneers when they beheld this conspicuous landmark for the first time. This apt name stuck.

The tree and its surrounding area most likely played an important role in the life of the native people inhabiting this part of the country before Europeans made their appearance.

How old the tree is, nobody can tell. With a little imagination one can picture Stone Age Man resting in its shade. He had his camping ground at a nearby site recently discovered to the east of the tree. After a successful hunt along the banks of the Apies River the tree could have provided him with an ideal " picnic spot ".

There are those who say that the blood-thirsty Matabele chief, Moselekatse, disturbed the peaceful and tranquil atmosphere of this fertile valley when he pitched his camp in the vicinity of the tree and from there staged his fearful raids in the countryside.

Written records quote the farm of that name even before the establishment of Pretoria. It was then recorded that L. A. and T. C. J. Erasmus were the first owners of the farm Wonderboom, then several thousand morgen in extent.

Decades rolled by with the tree basking in the sun.

A descendent of the early European pioneers, Mr. D. B. Menne, who came to the Pretoria area nearly a quarter of a century ago, recalled that his father had often spoken about the tree. His father camped under the tree for about a fortnight or longer while he was constructing a road through the Magaliesberg range even before Pretoria was in existence. (The date mentioned is 1843-1850.)

Mr. Menne (Snr.) was at that time trading from Pietermaritzburg into what was then called the " Back Velt " (Northern Transvaal). He made a kraal under the tree for his cattle and his servants cooked and slept there. One night while the servants were sitting around their fire a black rhinoceros broke into the enclosure, stampeded the cattle, charged the servants, scattered the fire, stood for a while and then broke out again.

Die jare het heengerol wyl die boom koesterend in die son gestaan het.

Bykans 'n kwarteeu gelede het 'n afstammeling van die eerste blanke pioniers wat die Pretoria-gebied besoek het, mnr. D. B. Menne, daaraan teruggedink dat sy vader dikwels van die boom gepraat het. Terwyl hy die pad deur die Magaliesbergreeks gebou het, nog voordat Pretoria aangelê is, het sy vader onder die boom vir veertien dae of langer gekampeer. (Die datum wat genoem word, is 1843-1850.)

Mnr. Menne (snr.) het destyds gesmous vanaf Pietermaritzburg tot in die „ Back Velt " (Noord-Transvaal, soos dit destyds bekend gestaan het). Onder die boom het hy 'n kraal vir sy vee gemaak; ook sy bediendes het hier kos gekook en geslaap. Een nag terwyl die bediendes rondom die vuur geskaar was, het 'n swartrenoster die afskorting ingebars, die vee oploop geja, die bediendes verskrik uitmekaar laat storm, die vuur verstrooi, vir 'n rukkie stilgestaan en toe weer uitgebars.

Hierdie storie oor die renoster in dié deel van die land mag vergesog klink. Tog het dr. R. Bigalke in 1934 in 'n brief aan 'n koerant bevestig dat renosters ongeveer 1850 wel in die Hartbeespoortdam-gebied aangetref is. Wyle dr. Austin Roberts het gesê dat hy renosterbeendere in die Fonteinevallei gevind het en dat witrenosters in ongeveer 1860 taamlik algemeen opgemerk is.

Dingaansdag- (nou Geloftedag-) vierings is vir baie jare by die Wonderboom gehou. Die Wonderboom-Dingaansdagkomitee het die fees georganiseer, en dit was hierdie komitee wat oor die toekoms van die Wonderboom ernstig besorg was. Dit het versoek, en was ten gunste daarvan, dat 'n komitee, die Wonderboom-Aankoopkomitee, gestig word wat fondse sou insamel vir die aankoop van 'n stuk van die plaas Wonderboom met die boom daarop en wat die nodige stappe sou doen om die eiendom te koop en daarna verbeterings te bewerkstellig en die gebied in stand te hou. Die bedoeling was om, ná die aankoop, die boom oor te dra aan die Kommissie tot Behoud van Natuurlike en Historiese Gedenkwaardighede en Oudhede.

Die stigtingslede van die Aankoopkomitee was: Mnr. J. de V. Roos, mnr. A. F. van Gass, mnr. P. J. Derwig, mnr. D. C. Malan, dr. P. J. du Toit, dr. J. E. Holloway, mnr. P. I. Hoogenhout, mnr. C. M. de Vries, mnr. Reenen van Reenen, mnr. L. P. van Zyl Ham, generaal C. H. Muller, mnr. A. P. Brugman, mnr. B. W. Goldstein, mnr. Harry Carter, mnr. Percy Cowen (die laasgenoemde drie was van Johannesburg), met mnr. Brugman as die eerste sekretaris.

By die komitee se eerste vergadering op 7 Augustus 1931 het mnr. van Gass, die verteenwoordiger van die Wonderboom-Dingaansdagkomitee, die redes verduidelik wat sy komitee aangespoor het om die aankoop van die Wonderboom te ondersteun. Hy het meegedeel dat sy komitee opsies oor 'n gebied van ongeveer 44 morge rondom die boom verkry het. Hierdie opsies, het hy gesê, sal oorgedra word aan 'n goedgekeurde liggaam, soos bv. die Nasionale Monumentekommissie, op voorwaarde dat sy komitee gemagtig word om voort te gaan om Dingaansdagvierings by die Wonderboom te hou.

Die Wonderboom-Aankoopkomitee het saamgestem dat daar 'n plek naby Pretoria moet wees waar nasionale feesvierings gehou kan word en dat die boom en sy omgewing by uitstek vir die doel geskik was. Daar is ook gemeen dat die gebied as ontspanningsterrein kon dien en dat dit as 'n botaniese tuin ontwikkel kon word.

Mr. J. de V. Roos when still a young man. In later years when he was Controller and Auditor-General he was a prominent member of the Wonderboom Purchase Committee.

Mnr. J. de V. Roos op jeugdige leeftyd. In latere jare toe hy Kontroleur en Ouditeur-generaal was, was hy 'n vooraanstaande lid van die Wonderboom-Aankoopkomitee.

Die komitee het besluit dat, met die oog op die historiese en wetenskaplike waarde van die boom, elke moontlike poging aangewend moet word om die boom vir die volk aan te koop sodat dit as blywende byme-kaarkomplek vir Dingaansdag- en ander volksvierings gebruik kon word. Indien genoeg fondse ingesamel word, moes die Wonderboom-gebied ook tot botaniese tuin en ontspanningsterrein ontwikkel word.

'n Ander besluit wat geneem is, was om fondse te verkry van die publiek, die Regering, die Provinsiale Administrasie en van munisipaliteite. Mnre. Roos, van Gass, P. I. Hoogenhout, Reenen van Reenen en Brugman is versoek om die Regering, die Provinsiale Administrasie en plaaslike owerhede te nader om vas te stel of hulle die skema sou steun.

Die opsies wat vir die aankoop van die Wonderboom-gebied verkry is, is mettertyd (Februarie 1934) na die Aankoopkomitee oorgedra.

Die werksaamhede van hierdie komitee het aansienlike belangstelling in Johannesburg gaande gemaak en tot gevolg gehad dat daar in April 1934 'n onderkomitee gestig is met mnr. Harry Carter, L.P.R., as voorsitter en mnr. Percy Cowen as sekretaris. Hierdie onderkomitee het uitstekende werk gelewer en dit was hoofsaaklik as gevolg van hul bedrywighede dat die Johannesburgse koerante verslag oor die pogings in Pretoria om die Wonderboom vir die publiek aan te koop, gedoen het.

Die Aankoopkomitee in Pretoria het met waardering van hierdie pogings kennis geneem en het sy doel met hernude ywer nagestrewe. Daar is eenparig besluit dat 'n brosjure oor die Wonderboom vir die insamelaars in hulle poging om fondse te verkry, van ontsaglike hulp sou wees. Van hierdie skema het op die ou end niks gekom nie ondanks die aanbod van die Publisiteits- en Reisdepartement van die Suid-Afrikaanse Spoorweë om die helfte van die koste van so 'n brosjure te dra.

Uit vertoë wat intussen tot die Stadsraad van Pretoria gerig is, het dit geblyk dat die Stadsraad die beskouings oor die ontwikkeling van die Wonderboom simpatiek gesind was. Die Raad het egter voorgestel dat 'n afvaardiging van die Raad, die Publisiteitsvereniging en verteenwoordigers van belangstellende openbare liggame 'n onderhoud met die Administrateur voer in 'n poging om die Provinsiale Administrasie oor te haal om 'n nuwe pad as alternatiewe uitgang van Pretoria na die Noorde te bou.

Samewerking tussen die Provinsiale Administrasie en die Raad het ongeveer vyf of ses jaar later hierdie nuwe uitgang teweeggebring—die pad oor Voortrekkernek wat die Wonderboom-terrein aan die oostekant begrens.

Die pad van die Aankoopkomitee het egter 'n doringbesaaide een gebly.

Die ere-sekretaris, mnr. A. O. D. Mogg, het in September 1935 meegedeel dat die veldtog om fondse van private bydraers in te samel, slegs £130 opgelewer het, met die belofte van verdere bydraes van slegs £150. Daar was onder die omstandighede dus weinig hoop dat enige finaliteit ooit bereik sou kon word, en dit is besluit dat die Stadsraad van Pretoria, die Provinsiale Administrasie en die Unie-regering genader moet word met die voorstel dat elkeen van hulle die beginsel aanvaar om een-derde van die prys vir ongeveer 60 morge rondom die boom by te dra.

This story about a rhinoceros in this part of the country may seem far fetched. But in a letter to a newspaper in 1934, Dr. R. Bigalke confirmed that rhinoceroses were known in the Hartbeespoort area in about 1850. The late Dr. Austin Roberts is quoted as having said that he had found bones of a rhinoceros in the Fountains Valley and that white rhinoceroses were quite frequently reported in about 1860.

For very many years Dingaan's Day (now the Day of the Covenant) celebrations were held at the Wonderboom. The festivities were organised by the Wonderboom Dingaan's Day Celebrations Committee, and it was this committee which seriously concerned itself with the future of the Wonderboom. It requested and approved of the establishment of a committee, called the Wonderboom Purchase Committee, to collect funds for the purchase of a piece of the farm Wonderboom, with the tree on it, and to take such steps as it thought necessary to acquire the property, and thereafter to effect and maintain improvements. It was intended, after purchase, to transfer the Tree to the Commission for the Preservation of Natural and Historical Monuments, Relics and Antiques.

The foundation members of the Purchase Committee were: Mr. J. de V. Roos, Mr. A. F. van Gass, Mr. P. J. Derwig, Mr. D. C. Malan, Dr. P. J. du Toit, Dr. J. E. Holloway, Mr. P. I. Hoogenhout, Mr. C. M. de Vries, Mr. Reenen van Reenen, Mr. L. P. van Zyl Ham, General C. H. Muller, Mr. A. P. Brugman, Mr. B. W. Goldstein, Mr. Harry Carter, Mr. Percy Cowen (the last three-mentioned from Johannesburg), with Mr. Brugman as the first secretary.

At the committee's first meeting on 7th August, 1931, Mr. van Gass, representing the Wonderboom Dingaan's Day Committee, explained the reasons that prompted his committee to support the purchase of the Wonderboom. He stated that his committee had obtained options to purchase an area of about 44 morgen surrounding the Tree. These options, he said, would be ceded to an approved body, like the National Monuments Commission, provided his committee was authorised to continue holding Dingaan's Day celebrations at the Wonderboom.

The Wonderboom Purchase Committee agreed that there should be a place near Pretoria where national celebrations could be held, and that the Tree and its surroundings were eminently suitable for this purpose. It was also thought that the area could serve for recreational purposes and that it could be developed as a botanical garden.

In view of the historical and scientific value of the Wonderboom, this committee decided that every effort should be made to acquire the Tree for the nation so that it could serve as a permanent meeting place for Dingaan's Day and other national celebrations. Should sufficient funds be collected, the Wonderboom area should be developed as a botanical garden and recreational centre.

Another decision was to collect funds from the public, the Government, the Provincial Administration and municipal councils. Messrs. Roos, van Gass, P. I. Hoogenhout, Reenen van Reenen and Brugman were requested to approach the Government, the Provincial Administration and local authorities to ascertain whether they would support the scheme.

In due course (February, 1934) the options that had been obtained for the purchase of the Wonderboom area were transferred to the Purchase Committee.

The activities of this committee aroused considerable interest in Johannesburg, resulting in the establishment there (in April, 1934) of a

Die Stadsraad het pragtig gereageer. Dit het nie alleen die beginsel aanvaar om een-derde van die som by te dra mits die Regering en die Provinsie dieselfde doen nie, maar het ook te kenne gegee dat hy die moontlikheid sou oorweeg om as beskermheer op te tree indien die boom aangekoop en aan die Historiese Monumentekommissie oorgedra word. Nie-amptelik is aangedui dat, aangesien die gebied suid van dié wat die Aankoopkomitee van voornemens was om te koop, reeds munisipale eiendom was, die moontlikheid om dit by die voorgestelde natuurreservaat in te lyf, gunstig oorweeg sou word. Die hoop is uitgespreek dat die Raad van Kuratore van die Nasionale Dieretuin sou help om die gebied van geskikte diere te voorsien.

Die komitee het minder goed gevaar in sy onderhandelings met die Provinsie. Nadat vertoë tot die Administrateur gerig was, is 'n mosie in die Provinsiale Raad ingedien waarin gevra word om dieselfde beginsel as die Stadsraad te aanvaar. (Die bedrag wat destyds hierby betrokke was, was ongeveer £1,100.)

Na 'n bespreking in die Provinsiale Raad is die voorsitter se aankondiging dat die mosie aanvaar is, betwis en daar die daaropvolgende verdeling gelykop was, het die mosie verval.

Die onderhandelings met die Regering het eweneens misluk. Nadat 'n afvaardiging van die Aankoopkomitee 'n onderhoud met die Minister van Binnelandse Sake gevoer het, het die Sekretaris van Binnelandse Sake die komitee in November 1935 meegedeel dat die Minister van mening was dat die aankoop van die boom nie 'n nasionale nie, maar 'n plaaslike saak was en dus een wat deur die publiek, die Stadsraad van Pretoria en die Provinsiale Administrasie behandel moes word.

Die Aankoopkomitee het egter geweier om sy skema te laat vaar en in Februarie 1936 het dit 'n afvaardiging na die Stadsraad se Komitee vir Algemene Sake gestuur. Hierdie afvaardiging het aan die Raad voorgestel dat die saak, uit elke oogpunt beskou, baie meer bevredigend sou wees as die Raad die alleen-eienaar en bewaarder van die voorgestelde reservaat sou wees.

Terwyl die Raad hierdie voorstel oorweeg het, het die Sekretaris van die Kommissie tot Behoud van Natuurlike en Historiese Gedenkwaardighede en Oudhede die Aankoopkomitee in Augustus 1936 meegedeel dat sy kommissie van voorneme was om by die Minister van Binnelandse Sake aan te beveel dat die boom as nasionale monument geproklameer behoort te word. (Geen uitvoering is egter aan hierdie aanbeveling gegee nie.)

Intussen het die Stadsraad die voorstelle van die Aankoopkomitee en ander aspekte van die saak oorweeg en op 28 September 1936 het dit besluit om die volgende aan te koop: —

(i) Van mnr. D. J. C. B. van Deventer, die helfte van 'n deel van die plaas Wonderboom No. 311 (41·0783 morge groot) en 'n ander deel (6·6233 morge groot) vir £1,550; en

(ii) van mev. A. E. van der Linde, die ander helfte van die gedeelte van Wonderboom (41·0783 morge groot) en 'n ander gedeelte van 10·9208 morge vir £1,610—'n totaal van £3,160.

sub-committee with Mr. Harry Carter, M.P.C., as chairman and Mr. Percy Cowen as secretary. This sub-committee did good work and it was mainly as a result of their activities that the Johannesburg newspapers reported on the efforts being made in Pretoria to purchase the Wonderboom for the public.

In Pretoria the Purchase Committee noted these efforts with appreciation and pursued its efforts with renewed vigour. It decided unanimously that a brochure on the Wonderboom would be of enormous assistance to the collectors trying to raise funds. In the end nothing came of this scheme even though the Publicity and Travel Department of the South African Railways had offered to bear half of the costs of publishing such a brochure.

Representations that had meanwhile been made to the City Council of Pretoria brought the reply that the City Council was in full sympathy with the views expressed regarding the development of the Wonderboom but wished to suggest that a deputation from the Council, the Publicity Association and representatives of interested public bodies should interview the Administrator and endeavour to induce the Provincial Administration to construct a new road as an alternative outlet from Pretoria to the North.

Some five or six years later co-operation between the Province and the Council brought about this new outlet—the road *via* Voortrekker Nek which skirts the Wonderboom terrain on its eastern side.

The Purchase Committee's path, however, remained one that was strewn with thorns.

In September, 1935, the honorary secretary, Mr. A. O. D. Mogg, reported that the campaign to collect funds from private subscribers had yielded only £130, with promises of further contributions amounting to only £150. In the circumstances there seemed little hope of any finality being ever reached and it was decided to approach the City Council of Pretoria, the Provincial Administration and the Union Government with a suggestion that each of them should accept the principle of paying one-third of the purchase price of about 60 morgen around the Tree.

The City Council responded magnificently. It not only agreed to the principle of providing one-third of the purchase price, provided the Government and the Province did likewise, but it also intimated that it would consider the question of acting as guardian should the Tree be acquired and be transferred to the Historical Monuments Commission. Unofficially it was intimated that, as an area south of that which it was proposed to buy was already municipal property, the possibility of incorporating this with the proposed nature reserve, would be considered favourably. The hope was expressed that the Board of Trustees of the National Zoological Gardens would assist in stocking the area with suitable animals.

The committee did not fare equally well in its negotiations with the Province. After it had made its representations to the Administrator, a motion was introduced in the Provincial Council asking for the acceptance of the same principle as that agreed to by the City Council (involving at that time an amount of about £1,100).

Die gebied wat die Raad vir hierdie doel aangekoop het, is dus altesaam 99·7007 morge (wat later by die munisipale gebied ingelyf is).

Hierdie besluit deur die Raad het beteken dat die Wonderboom-Aankoopkomitee sy doel bereik het en hom dus van die toneel sou kon verwyder om op sy louere te rus. In plaas daarvan het die komitee, terwyl baie waarderend vir die houding van die Raad, in Desember 1936 by sy laaste algemene vergadering besluit om die Raad mee te deel dat dit by daardie vergadering voorgestel is dat 'n soortgelyke komitee in die lewe geroep word om die Raad in 'n raadgewende hoedanigheid by te staan om sy ander ideaal, naamlik die ontwikkeling van die gebied rondom die Wonderboom as natuurreservaat, te verwesenlik. Die personeel van die nuwe komitee, genoem die Raadgewende Wonderboom-Komitee, het bestaan uit: mnre. A. van Gass, A. P. Brugman, S. Koster, dr. R. Bigalke, dr. A. A. Roberts, dr. A. J. Ueckermann en mnr. A. O. D. Mogg as waarnemende sekretaris.

Die Raad is ook meegedeel dat die algemene komitee eenparig van mening was dat die Raad aangespoor moes word om onmiddellik stappe vir die bewaring van die boom te doen. In hierdie verband was gemeen dat die aanstelling van 'n opsigter die dringendste vereiste was.

Volgende op die lys was die omheining van die gebied. Sou die hele werk nie onmiddellik gedoen kon word nie, dan moes ten minste die gebied rondom die boom omhein word. Sommige heinings is verwyder en daar was die moontlikheid van beskadiging deur piekniekmakers, toevallige besoekers en diere wat nou onbeperkte toegang tot die boom gehad het.

Die Raadgewende Komitee het sy eerste vergadering in Februarie 1937 gehou en kort daarna is 'n aantal voorstelle aan die Raad voorgelê.

Die komitee is gedurende die volgende maand in kennis gestel dat die gebied rondom die boom reeds omhein is. Die komitee het met waardering van hierdie verwikkeling kennis geneem maar het sy vorige versoeke dat die hele gebied as natuurreservaat geproklameer word, herhaal en bygevoeg dat die gebied wat reeds verkry is, deur die verkryging van omtrent 60 acres teen die suidelike hang van die berg vergroot word.

Die Raad het in Maart 1937 in beginsel goedgekeur dat die gebied rondom die boom as natuur- en wildreservaat geproklameer word wat as die „Wonderboom-reservaat" bekend sou staan.

Herhaalde voorstelle oor die ontwikkeling van die gebied is vir baie jare deur die Raadgewende Komitee aan die Raad gemaak. Die Raad het dit egter as gevolg van gebrek aan die nodige fondse onmoontlik gevind om soveel te doen as wat voorgestel was. Nogtans was daar vooruitgang en etlike verbeterings is aangebring, soos bv. die voorsiening van water en ander fasiliteite.

Vroeg in 1947 is nuwe latrines en naturellekwartiere teen 'n koste van omtrent £1,500 voltooi en in Maart 1952 het water in die reservaat beskikbaar geword.

After the debate in the Provincial Council, the chairman's announcement that the motion had been carried was challenged, and the subsequent division revealed an equality of votes, so that the motion lapsed.

The approach to the Government proved equally abortive and, after a deputation from the Purchase Committee had interviewed the Minister of the Interior, the Secretary of the Interior, in November, 1935, informed the committee that the Minister was of the opinion that the purchase of the Tree was a local, and not a national, matter, and one that should be dealt with by the public, the City Council of Pretoria and the Provincial Administration.

But the Purchase Committee refused to abandon its project and in February, 1936, it sent a deputation to the City Council's General Purposes Committee. This deputation suggested to the Council that the position would be far more satisfactory from every point of view if the Council were to be the sole owner and custodian of the proposed reserve.

While the Council was considering this suggestion the secretary of the Commission for the Preservation of Natural and Historical Monuments in August, 1936, informed the Purchase Committee that his commission intended recommending to the Minister of the Interior that the Tree should be proclaimed a national monument (but no effect has been given to this recommendation).

Meanwhile the City Council had been considering the suggestions made by the Purchase Committee and other aspects of the matter and on 28th September, 1936, it agreed to purchase—

(i) from Mr. D. J. C. B. van Deventer one-half share of a portion of the farm Wonderboom No. 311, measuring 41·0783 morgen and another portion measuring 6·6233 morgen for £1,550; and

(ii) from Mrs. A. E. van der Linde the other half share of the portion of Wonderboom (measuring 41·0783 morgen) and another portion of 10·9208 morgen for £1,610—a total of £3,160.

The area bought by the Council for this purpose, therefore, totalled 99·7007 morgen (which was subsequently incorporated into the municipal area).

This decision by the City Council meant that the Wonderboom Purchase Committee had achieved its object and could, had it so desired, have retired from the scene to rest on its laurels. Instead, the committee, while most appreciative of the Council's attitude, at its final general meeting in December, 1936, decided to inform the Council that at that meeting it had been suggested that a similar committee should remain in being to act in an advisory capacity in assisting the City Council in the achievement of its other object, namely, the development of the area around the Wonderboom as a nature reserve. The personnel of this new committee, named the Wonderboom Advisory Committee, was as follows: Messrs. A. van Gass, A. P. Brugman, S. Koster, Dr. R. Bigalke, Dr. A. A. Roberts, Dr. A. J. Ueckermann and Mr. A. O. D. Mogg as acting secretary.

Lank voordat hierdie verbeterings teweeggebring is, was beide die komitee en die Raad geskok toe dit bekend geword het dat die Nasionale Padraad van voorneme was om die Grootpad na die Noorde so te verlê dat dit deur die Wonderboompoort, oos van die rivier, sou gaan. Dit het beteken dat enige wild in die voorgestelde reservaat van water in die rivier afgesny sou wees. Etlike vertoë is aan die Padraad gerig, maar die komitee en die Raad is teen die einde van 1938 meegedeel dat die Padraad nie bereid was om van sy voorneme af te wyk nie. Inteendeel, dit is bevestig dat die nuwe pad aan die oostekant van die Apiesrivier gebou sou word sodat dit by The Thorns in die bestaande pad kon loop.

Toe het die Tweede Wêreldoorlog uitgebreek en geen padbouwerk is by die Wonderboompoort gedoen nie. Na afloop van die oorlog—in Januarie 1947—het die Raadgewende Komitee weereens die vraag of die nuwe nasionale pad deur die Wonderboompoort moes gaan, met die Nasionale Padraad opgeneem en hernude protes is teen die voorgestelde ligging van die pad oos van die rivier aangeteken.

In Maart 1949 het die Stadsklerk by 'n vergadering van die Komitee vir Algemene Sake verslag gedoen dat 'n brief van die Provinsiale Sekretaris ontvang is waarin gesê word dat die Provinsiale Administrasie 'n nuwe voorstel aan die Nasionale Padraad vir die ligging van die pad deur die poort voorgelê het. Die nuwe pad sou, ingevolge hierdie nuwe voorstel, aan die westekant van die rivier bly en gevolglik sou die rivier vir die wild in die natuurreservaat toeganklik bly.

'n Ander ontwikkeling het intussen plaasgevind: Die Stadsraad het in Julie 1941 'n brief van mnr. H. R. Abercrombie oorweeg waarin hy aangebied het om aan die Raad 'n gedeelte van die plaas Wonderboom, grensende van noord na suid aan die Raad se eiendom, langs die Apiesrivier en ongeveer agt morge groot, teen £6,000 te verkoop op voorwaarde dat die eiendom „ Abercrombiepark " sou heet. Mnr. Abercrombie het voorgestel dat indien die Raad hierdie voorstel aanvaar, hy £1,000 aan die Raad sou skenk wat, aangesien hy 'n liefhebber van blomme was, gebruik moes word vir die bou van 'n dam en die uitlê van tuine naby die bestaande swembad. Hierdie geskenk, wat anoniem moes bly, kon ook vir ander verbeterings op die eiendom aangewend word.

Die eiendom is mettertyd deur die Raad aangekoop, maar geen verdere stappe is in verband met die ander voorstelle van mnr. Abercrombie gedoen nie.

Ten spyte daarvan dat etlike voorstelle vir die ontwikkeling van die gebied van tyd tot tyd deur die Direkteur van Parke gedoen is, het 'n gebrek aan fondse die Raad tot dusver verhoed om aan hierdie skemas uitvoering te gee.

Die Sekretaris van die Raadgewende Wonderboom-Komitee het die Raad in Februarie 1940 gevra om tot die stigting van 'n Raadgewende Komitee oor Pretoriase Reservate toe te stem en dat die huidige personeel van die Raadgewende Wonderboom-Komitee gemagtig word om as lede van hierdie nuwe komitee op te tree. Daar is daarop gewys dat toe die Raad die Wonderboom-gebied aangekoop het, die destydse burgemeester, raadslid J. J. Cooke, voorgestel het dat die Wonderboom-Aankoopkomitee

The Council was further informed that the general committee was of the unanimous opinion that the Council should be urged to take immediate steps to preserve the Tree. In this connection it was thought that the most urgent need was the appointment of a caretaker.

Next in order came the fencing of the area. If the whole work could not be done immediately then at least the area around the Tree should be fenced. Some fences had been removed and there was a distinct possibility of damage being done to the Tree by picnickers, casual visitors and animals which now had unrestricted access to the Tree.

The Advisory Committee held its first meeting in February, 1937, and shortly thereafter submitted a number of suggestions to the Council.

During the next month the committee was informed that the area around the Tree had already been fenced. The committee noted this fact with appreciation but renewed its former pleas that the whole area should be proclaimed as a nature reserve, and added that the area already acquired should be enlarged by the acquisition of about 60 acres on the southern slope of the mountain.

In March, 1937, the Council agreed in principle that the area around the Tree should be proclaimed a game and nature reserve to be known as the " Wonderboom Reserve ".

For several years frequent suggestions about the development of this area were made by the Wonderboom Advisory Committee to the City Council. The Council, however, found it impossible to do as much as was suggested because of lack of funds. Even so, there was progress and various improvements were effected, such as the provision of water and other amenities.

New latrines and native quarters were completed early in 1947 at a cost of about £1,500, and water became available at the Reserve in March, 1952.

Long before these improvements were effected both the committee and the Council were shocked when they learned that the National Roads Board proposed resiting the Great North Road so as to pass through the Wonderboom Poort east of the river. This meant that any game in the proposed reserve would be cut off from the water in the river. Several representations were made to the Roads Board but late in 1938 the committee and the Council were informed that the Roads Board was not prepared to vary its decision. On the contrary, it was confirmed that the new road would be constructed on the east side of the Apies River so as to join the existing road at The Thorns.

Then the Second World War broke out and no road construction work was done at the Wonderboom Poort. After the war—in January, 1947—the Advisory Committee again took up the question of the site of the new national road through the Wonderboom Poort with the National Roads Board and renewed its protests against the proposed siting of the road east of the river.

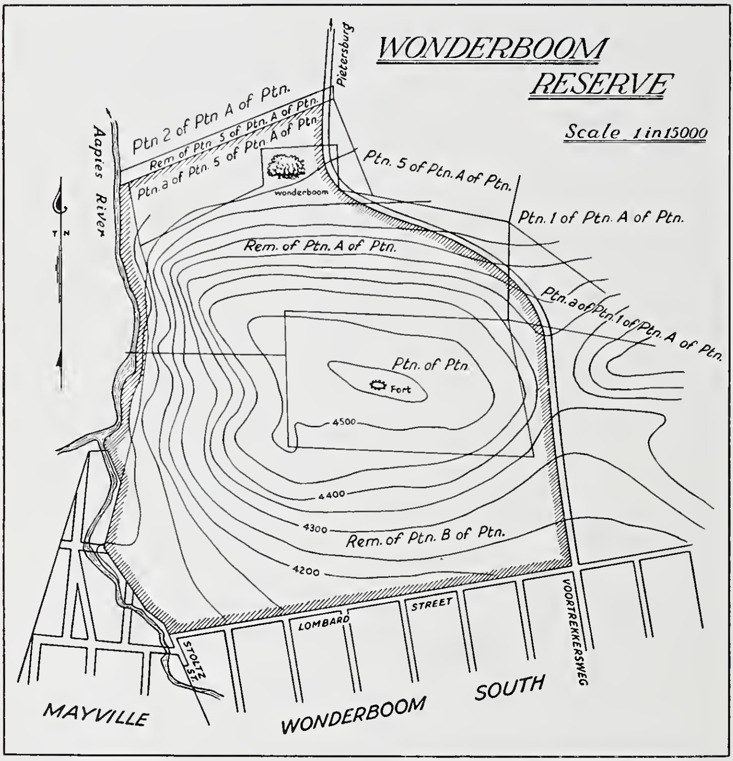
At a General Purposes Committee meeting, held in March, 1949, the Town Clerk reported to the Council that a letter had been received from the Provincial Secretary in which it was stated that the Provincial

nie ontbind moes word nie, maar dat dit sou bly voortbestaan aangesien dit van ontsaglike hulp sou wees as dit in 'n raadgewende hoedanigheid in die tuig sou bly.

Hierdie voorstel is hartlik deur die afgevaardigdes van veertien wetenskaplike en publieke liggame onderskryf, asook deur ander lede van die publiek.

Afgesien van die voorgestelde Wonderboom-reservaat het die Stadsraad reservate by Rietvlei en die Fonteinevallei gehad en dit was moontlik dat met die verloop van tyd meer tot stand sou kom.

Die Raad is dringend versoek om amptelike erkenning aan 'n komitee, onder die naam Raadgewende Komitee oor Pretoriase Reservate, en bestaande uit die volgende dertien lede, te gee: dr. R. Bigalke, dr. A. A. Roberts, dr. A. J. Ueckermann, dr. A. D. Thomas, dr. J. W. Rowland, mnr. A. O. D. Mogg, mnr. A. P. Brugman, mnr. S. Koster, luit.-kol. B. J. Swart, mnr. J. J. Cooke, mnr. J. A. Lombard, mnr. D. P. van Heerden en mnr. A. van Gass, en as amptelike lede: die Stadsingenieur, die Kontroleur van Voorrade en Eiendomme, die Superintendent van Parke en (later) die Stedelike Skakelbeampte.



Administration had submitted a new proposal to the National Roads Board for the siting of the road through the Poort. In terms of this new proposal the new road would remain on the western side of the river and consequently the river would remain accessible to game in the nature reserve.

In between these years another development had taken place: In July, 1941, the City Council considered a letter from Mr. H. R. Abercrombie in which he offered to sell to the Council a portion of the farm Wonderboom, about eight morgen in extent, adjoining the Council's property (from north to south) along the Apies River for £6,000. The sale would be conditional on this property being called "Abercrombie's Park". Mr. Abercrombie proposed that in the event of the Council agreeing to buy this property he would donate £1,000 to the Council to be spent on constructing a dam and laying out gardens near the existing swimming bath, as he was very fond of flowers.

This gift was to remain anonymous and could also be devoted to other improvements on the property.

This property was subsequently bought by the Council, but no further steps were taken in connection with the other proposals made by Mr. Abercrombie.

Although several suggestions for developing this area on lines similar to the Fountains Valley were made from time to time by the Director of Parks, lack of funds has thus far prevented the Council from giving effect to these schemes.

In February, 1940, the secretary of the Wonderboom Advisory Committee requested the Council to agree to the establishment of a Pretoria Reserves Advisory Committee, and asked that the present personnel of the Wonderboom Advisory Committee should be authorised to function as members of the new committee. It was pointed out that when the Council bought the Wonderboom area, the then Mayor, Councillor J. J. Cooke, had suggested that the Wonderboom Purchase Committee should not disperse but that it should continue to serve as it could be of considerable value in remaining in harness in an advisory capacity.

This proposal had been heartily endorsed by delegates of fourteen scientific and public bodies represented and other members of the public.

In addition to the proposed Wonderboom Reserve, the City Council had reserves at Rietvlei and Fountains Valley, and it was possible that more would be established in the course of time.

The Council was urged to give official recognition to a committee of the following thirteen members under the name of Pretoria Reserves Advisory Committee: Dr. R. Bigalke, Dr. A. A. Roberts, Dr. A. J. Ueckermann, Dr. A. D. Thomas, Dr. J. W. Rowland, Mr. A. O. D. Mogg, Mr. A. P. Brugman, Mr. S. Koster, Lieut.-Col. B. J. Swart, Mr. J. J. Cooke, Mr. J. A. Lombard. Mr. D. P. van Heerden and Mr. A. van Gass, and as official members: The City Engineer, the Controller of Stores and Estates, the Superintendent of Parks, and (later) the Public Relations Officer.

Die Raad het in Maart 1940 besluit dat, onderhewig aan die insluiting van die voorsitter van die Komitee vir Algemene Sake en Eiendomme, die Raadgewende Komitee in kennis gestel word dat die Raad bereid was om die komitee as 'n raadgewende komitee in verband met die natuurreservate in Pretoria te erken.

Teen die einde van 1943 het die Raadgewende Reservatekomitee die Raad aangespoor om by die Administrateur aansoek te doen om die Wonderboom-reservaat as natuur-, wild- en voëlreservaat te proklameer; so 'n aansoek was mettertyd by die Provinsiale Administrasie gedoen. Die Provinsiale Sekretaris het die Raad in Mei 1949 meegedeel dat die Administrateur-in-Uitvoerende Komitee toegestem het om die Wonderboom-gebied tot wild- en inheemse flora-reservaat te proklameer, en hierdie Proklamasie is in die *Provinsiale Koerant* van 28 Desember 1949 gepubliseer. 'n Tweede Proklamasie wat die naam, grootte (ongeveer 141·7894 morge) en die meegaande kaart van die reservaat ingesluit het, het in 'n *Buitengewone Provinsiale Koerant* van 8 September 1954 verskyn.

Etlike verbeterings is sedert die oorspronklike proklamasie aangebring en dit was uit die Raad se houding in die verlede duidelik dat, sodra fondse beskikbaar was, bykomende aantreklikhede en fasiliteite voorsien sou word.

In March, 1940, the Council resolved that, subject to the inclusion of the chairman of the General Purposes and Estates Committee, the Advisory Committee be informed that the Council was prepared to recognise this committee as an advisory committee in connection with matters relating to nature reserves in Pretoria.

Towards the end of 1943, the Reserves Advisory Committee urged the Council to apply to the Administrator to have the Wonderboom Reserve proclaimed as a nature, game and bird sanctuary, and such an application was in due course submitted to the Provincial Administration. In May, 1949, the Provincial Secretary informed the Council that the Administrator-in-Executive Committee had agreed to the Wonderboom area being declared a game and native flora reserve, and the Proclamation was published in the *Provincial Gazette* of 28th December, 1949. A second Proclamation which included the name, size (approximately 141·7894 morgen) and the accompanying map of the reserve, appeared in a *Provincial Gazette Extraordinary* of 8th September, 1954.

Since the original Proclamation several improvements have been effected and it is obvious from the Council's attitude in the past that, as soon as funds become available, additional amenities and facilities will be provided.

DIE WONDERBOOM: BOTANIESE EN GESKIEDKUNDIGE ASPEKTE

deur A. O. D. Mogg, M.A., B.Sc.

DIE beroemde Pretoriase Wonderboom is deur dr. I. B. Pole Evans, 'n voormalige Direkteur van die Botaniese Opname van Suid-Afrika, beskryf as „die merkwaardigste voorbeeld van sy soort in Afrika en 'n Nasionale Monument ". Hierdie manjifieke boom nestel teen die beskutte en warm noordelike hange van die Magaliesbergreeks, 'n paar myl benoorde Pretoria en in die nabyheid van die poort waardeur die Apiesrivier vloei—'n plek gekenmerk deur sy buitengewone natuurskoon.

Op hierdie punt is die berg omtrent 600 voet hoër as die vlakte. Massiewe kwartsietrotse, plek-plek deur etlike digbegroeide skeure gebreek, toring in steil kranse oor die beboste stroom.

Wanneer mens die Wonderboom-reservaat vanaf die Noorde nader, sien mens taamlik diggroeiende kleiner bome wat die hoër hange en die top van die berg begroei en laeraf 'n strook van lowerryke bome wat duidelik hoër groei aan die voet van die berg. Daar is 'n goeie rede vir hierdie weelderige plantegroei. Verwering, die uitwerking van die plantwortels en die dreinering vanaf die hoër- na die laerliggende dele van die berg het as gevolg gehad dat daar aan die noordelike voet van die berg 'n opeenhoping van los klippe, humus en sand tot 'n groot diepte plaasgevind het (hier en daar is putte wat 'n diepte van selfs meer as 70 voet aandui). Dit het aan die bome 'n diep en ryk leemagtige grond verskaf. Voeg hierby die „beskerming" wat deur die berg teen buitengewone uiterstes in die klimaat verskaf word, asook die sonnige aspek gepaard met vrywaring teen die ergste hitte, die hoë grond- en atmosferiese vogtigheid, die minimale uitwerking van wind en die hoë reënval, dan word hierdie verskynsel duidelik. Dit verklaar hoekom hierdie ryk en goeie versameling van 'n hele aantal lowerryke bome, wat andersins selde in Pretoria aangetref word, hier gevind word. (Die bome en struike is vollediger beskryf in die artikel „Enkele Plantkundige Aspekte van die Wonderboom-natuurreservaat ".)

Die beroemde Wonderboom is een van hierdie spesies. Die boom self is 'n immergroen wildevy met die wetenskaplike naam *Ficus pretoriae* Burtt-Davy.

Daar is baie bome van hierdie spesie in die distrik, veral teen die noordelike hange van die Magaliesberg en mooi bome is tot so ver wes as Marico aangetref. Die mees bekende boom is die Kleinwonderboom wat omtrent 'n kwartmyl wes van Wonderboompoort groei. Dan tref 'n mens die bome ook aan in die Waterbergse en die laeveldse gebiede van Transvaal, in Portugees-Oos-Afrika, ander tropiese dele van Oos-Afrika en Socotra, 'n eiland in die Indiese Oseaan naby die noordoostelike punt van Afrika.

Dit is veral sy verspreidingsmetode en die mate daarvan, met inagneming van die feit dat die boom so ver suid groei, wat die Wonderboom so buitengewoon maak. Inderdaad is daar geen ander boom van hierdie

THE WONDERBOOM: BOTANICAL AND HISTORICAL FEATURES

by A. O. D. Mogg, M.A., B.Sc.

THE famous Pretoria Wonderboom was described by Dr. I. B. Pole Evans, when Director of the Botanical Survey of South Africa, as " the most remarkable example of its species in Africa and a National Monument ".

This magnificent " tree " nestles against the sheltered and warm north slope of the Magaliesberg range, a few miles north of Pretoria, close to where the Apies River flows through the range in a gorge of extraordinary scenic grandeur.

The range rises to an elevation of some 600 feet above the plain at this point. Massive quartzite rocks which tower in steep krantzes above the wooded stream, are broken up in parts of the poort by numerous, densely vegetated ravines.

If one approaches the Wonderboom Reserve from the north, one notices, besides comparatively dense, low bush, which covers the mid- and summit slopes, a line of distinctly taller, greener, and more umbrageous trees densely packed at the immediate base of the berg. There is a good reason for this more luxuriant growth. The erosive effect of weather, root-action and slope-directed drainage has resulted in the accumulation, at the base of the northern slopes, of screes, humus and sand to a great depth (in pits over 70 feet in places), providing a well-aerated, deep, rich, sandy loam. Add to this the " bufferage " from the extremes of the climatic elements occasioned by the protected angle of the berg on this sunny aspect (e.g. conservation of heat; high soil and atmospheric moisture; minimised wind effect; maximum rainfall benefit), and you find conditions very favourable to arborescent growth.

Consequently, it is not surprising to find an abundant and luxuriant growth, of a diversity of kinds of umbrageous trees not elsewhere common in Pretoria. (The trees and shrubs are more fully described in the article " Some Botanical Features of the Wonderboom Nature Reserve ".)

The famous Wonderboom is one of these species. The " tree " itself is an evergreen Wild Fig, technically known as *Ficus pretoriae* Burtt-Davy.

There are many examples of this species in the district, especially along the northern base of the Magaliesberg range, and fine specimens have been recorded as far west as Marico. The best known individual tree is the Klein Wonderbom, which is to be found a quarter of a mile to the west of Wonderboom Poort. Farther afield the species occurs in the Waterberg, the Lowveld areas of the Transvaal, in Portuguese East Africa, tropical East Africa, and Socotra, an island in the Indian Ocean, off the north-eastern tip of Africa.

What makes the Wonderboom remarkable is its mode of spread, and the extent to which this has been achieved in this " individual ", especially one occurring so far south. In fact, no other example of this species has anywhere been found which has attained such considerable dimensions. Pretoria is almost the most southerly limit in which this

soort bekend wat tot sulke afmetings gegroei het nie. Pretoria lê op wat amper die suidelikste grens is van die gebied waarin hierdie spesie tot dusver aangetref is. Ons weet almal hoe die aarbei versprei deur sy bogrondse ranke af te buig en wortel te skiet. Dit is ook die geval met die wollerige vingergras. Baie klimop- en slingerplante versprei ook op dieselfde manier. Maar om te vind dat bome van die grootte van die Wonderboom dieselfde verspreidingsmetode het, is heeltemal buitengewoon, indien nie uniek nie.

'n Besoeker het hierdie metode eenkeer soos volg beskryf: „Om straalvormig uit te stap en met elke stap 'n afstammeling te verwek." Die mate waartoe dit in die geval van die Wonderboom plaasgevind het, veral in hierdie klimaat, is verbasend. Daar is nie minder nie as dertien „ individue " wat op hierdie wyse vanuit die moederboom ontstaan het.

In dié verband het wyle dr. Bertha Stoneman in haar boek „ Plants and Their Ways in South Africa " (1906, bl. 4) gesê: „ Die geskiedkundige eikeboom van Franschhoek het gebloei en vir meer as tweehonderd jaar vrugte gedra maar geskiedenis het nie die aanplanting van Pretoria se beroemde Wonderboom aangeteken nie. Waar die verspreidende takke wortel geskiet het, het nuwe stamme gegroei totdat van die enkele boom 'n klein bos geword het."

Baie mense het na die ouderdom van die Wonderboom verneem. Teneinde enigsins 'n antwoord te kan verskaf, het 'n aantal bosbouers etlike jare gelede van die plekke waar sommige van die groot sytakke afgebreek het, skyfies uitgesny in 'n poging om die aantal jaarringe te tel en sodoende 'n benaderde ouderdom vas te stel. Dit is egter gevind dat in die geval van hierdie spesie dié metode van berekening nie heeltemal doeltreffend toegepas kan word nie. Maar wanneer mens algemene omstandighede oorweeg en 'n vergelyking tref met die tempo waarmee dergelike bome in 'n soortgelyke klimaat groei, kan daar gesê word dat die oorspronklike hoofstam moontlik 'n duisend jaar oud kan wees, en in alle waarskynlikheid nog ouer.

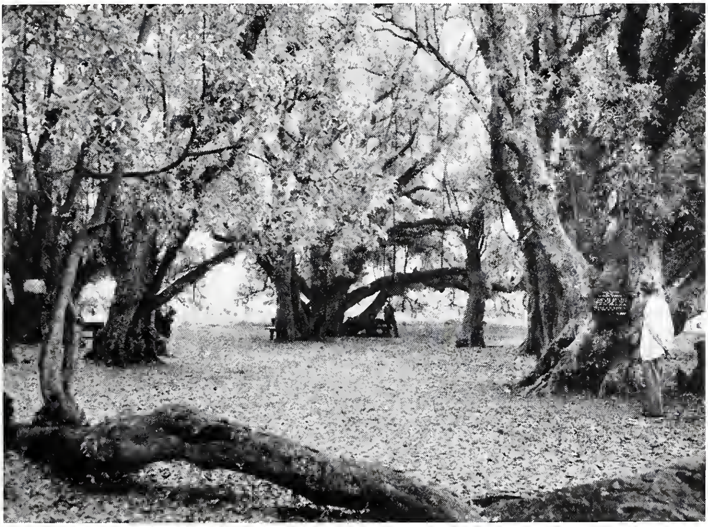
Daar is ook gevra: „ Hoekom is dit moontlik dat hierdie groep bome so groot en so oud kon word in die Pretoriase klimaat veral wanneer daar geen ander boom is wat so goed ontwikkeld en so oud is nie? " Hierdie vraag is deur 'n bekende plantkundige, wyle Eerw. J. Gerstner wat ook sendingwerk onder 'n aantal naturellestamme gedoen het, beantwoord. Hy doen aan die hand dat die enigste verklaring hoekom hierdie boom so kon ontwikkel en vir so lank behoue kon gebly het, te vinde is in die feit dat dit spesiaal beskerm is. Hy veronderstel dat in die vroeë geskiedenis, hoogswaarskynlik toe die boom alreeds groot en wydversprei was, dit as 'n begraafplaas van 'n belangrike naturellekoning gebruik is. Daarna is dit as begraafplaas vir ander stamhoofde gebruik, as 'n heilige plek geëerbiedig, as die vergaderplek van geeste beskou en met bygelowe „ omhein ". Dusdoende is dit van geslag tot geslag beveilig en bewaar.

Hierdie veronderstelling lyk heeltemal aanneemlik, veral met die oog op die jongste geskiedenis. Vandat die blankes hulle in hierdie gebied kom vestig het, en die daaropvolgende uitwissing van die „ heilige aspek " van die boom, is die boom herhaaldelik geskend. Tydens die meer as vyftig jaar waarin ek persoonlike waarnemings gedoen het, is alle verbindende stamme, behalwe een, verwyder. In die tydperk wat op die

species has hitherto been recorded. Now, one is accustomed to the mode of spread of the strawberry plant by the bending and rooting of its overground stems, called runners, or the similar stolons of the woolly finger-grass. Many climbing shrubs and lianas propagate in this way by layering. But to find trees of the magnitude of the Wonderboom adopting the same mode of spread is very unusual, if not unique. A visitor once described the process as " walking out radially to produce offspring at each step ".

The extent to which this has proceeded in the Wonderboom, in this climate, is surprising. No fewer than 13 " individuals " have arisen from the original trunk.

In this connection, the late Dr. Bertha Stoneman, in her book, *Plants and Their Ways in South Africa* (1906, p. 4), says: " The historical Oak of French Hoek has blossomed and shed its fruit for 200 years, but no date in history records the planting of the famous Wonderboom of Pretoria. Where the spreading branches have taken root, new trunks have grown up until the single tree has become a small forest."



A section of the circular hall formed by the secondary stems with the mother stem (right) as centre.

'n Gedeelte van die sirkelvormige saal wat deur die sekondêre stamme met die moederstam (regs) as middelpunt gevorm word.

Many people have enquired as to the probable age of the Wonderboom. To provide some sort of an answer, several foresters a few years ago took slices from where several of the large laterals had been severed, for the purpose of counting the number of annual rings, and so to arrive at an estimate. But it was found that this species does not lend itself readily to such a method of computation. However, from general considerations, and the comparison of the determinable growth rates in

Eerste Wêreldoorlog gevolg het, toe die boom so-te-sê gladnie beskerm was nie, het daar talle gevalle voorgekom waar groot en klein takke afgekap is, veral deur arm mense. Wat hierdie optrede des te betreurenswaardiger maak, is dat daardie mense 'n minderwaardige brandhout gekry het. Daarbenewens was hulle optrede niks minder as vandalisties nie. Ook het in die vroeë dertigerjare fortuinsoekers, op soek na die sogenaamde Krugermiljoene, groot gate tussen die wortels gegrawe, sommige waarvan sewe voet diep was en 'n lang tyd ongevul gebly het—'n wanpraktyk wat tot aansienlike grondverspoeling gelei het.

Tog het daar goed uit die kwaad gevloei, want daarna het die Wonderboom-Aankoopkomitee meer energiek opgetree en vandag staan die Wonderboom in 'n geproklameerde natuurreservaat.

Die beste beskrywing van die afmetings van hierdie „klein woud" om die Wonderboom, en die unieke verspreidingsmetode, is deur wyle prof. H. W. F. Wager gegee toe hy 'n besoek deur baie vooraanstaande plantkundiges en besoekers tydens 'n vergadering van die British Association in 1905 beskryf het.

'n Uittreksel van sy referaat wat in die „Transvaal Agricultural Journal" (Vol. IV, 1905) verskyn het, lees soos volg:—

„Die Wonderboom is 'n merkwaardige boom . . . Dit vorm 'n groot hemisferiese massa bedek met immergroen blare en klein vye. Sy deursnee van die N.N.O. na S.S.W. is 162½ voet en van O. na W. 141½ voet. Sy hoogte volgens 'n sekere wyse bereken, is 67 voet.

„Die boom versprei op 'n eienaardige manier. Sommige takke sprei sywaarts en straalvormig vanaf die hoofstam en sak geleidelik na die grond. Omtrent 30 voet vanaf die hoofstam raak hulle die grond en skiet wortel. Vanhier ontstaan daar weer 'n nuwe reeks stamme. Op hulle beurt stoot hierdie stamme ook weer sytakke uit en op dieselfde manier kan daar weer nuwe bome ontstaan wat dan 'n derde groep stamme sal daarstel.

„Mate wat toe geneem is, het getoon dat daar 'n binnering van nege groepe is wat die hoofboom omring, drie waarvan nog met mekaar deur hul afhangende takke *verbind* is.

„Die omtrek van die sentrale stammassa is 81 voet en die tweede groep is ongeveer sirkelvormig, gemiddeld sowat 30 voet verder uit. Buitekant die ring was daar drie ander groepe op 'n afstand van sowa 25 voet van die buitekant van die ring, nog verbind met die takke waarvan hulle ontstaan het."

Vandag bedek die boom 'n effens groter oppervlakte en sy hoogte is tenminste 74 voet. Een van die tragedies i.v.m. hierdie boom is dat feitlik alle verbindings tussen die bome verdwyn het. In die sekondêre sirkel het net een oorgebly. Selfs hierdie een is erg beskadig.

Die beroemde boom is dikwels al „die geskiedkundige Wonderboom" genoem. Ek kan geen regverdiging vir hierdie benaming vind in die opsig dat daar 'n belangrike geskiedkundige gebeurtenis met die boom verbind sou wees nie. Sy verband met Pretoria was egter nog steeds 'n belangwekkende faktor. Ek het egter moeite gedoen om verdere verwysings na die boom in die letterkunde te vind, en in die verband wil ek my dank betuig aan mej. M. Gunn, bibliotekaresse van die Afdeling Plantkunde in Pretoria.

similar trees of large diameter in a like climate, it could be said that the original main trunk might be 1,000 years old, and could probably be much more.

It has been asked also: " How is it that this Wonderboom group tree could attain such large proportions and persist to so great an age in the Pretoria climate, especially when we do not find a single other example so well developed, nor of similar age? "

This has been answered by a well-known botanist, the late Rev. J. Gerstner, who was also a missionary amongst many native peoples. He suggests that the only reason why this tree could develop to these proportions and be preserved for so long a period, was that it had been specially protected. He postulates that, early in its history, most likely when it had already become large and umbrageous, it was used as the burial place of some important chief. Thenceforth it was reserved for the burial place of other chieftains, revered as a Sacred Place, a rendezvous of ghosts, and invested with superstition. Thus it would become guarded and preserved from generation to generation.

This seems to be a credible theory, particularly in view of its more recent history. For, ever since the European occupation of these parts just over a hundred years ago, and the consequent brushing aside of " sanctuary " for the tree, the tree has been subject to mutilation.

During more than fifty years that I personally have known the tree, all but one of the connecting trunks have been severed. And, during the period following World War I, when the tree was afforded quite inadequate protection, many instances occurred where large and small branches were hacked off, mainly by poor people—surely a poor kind of firewood and a gross act of vandalism. In the early thirties, too, treasure-seekers after the mythical Kruger millions dug about the roots a large number of holes, some up to seven feet deep, which remained unfilled for a long time, occasioning considerable erosion.

It did some good, however, for after that the Wonderboom Purchase Committee more energetically took up the matter, and today the Wonderboom is in a proclaimed nature reserve.

The best idea of the dimensions of the " small forest ", which is the Wonderboom, and its peculiar mode of spread, is given by the late Professor H. W. F. Wager, when recording the visit to the tree of many eminent botanists and visitors during the session of the British Association in 1905.

An extract from the paper, which appeared in the *Transvaal Agricultural Journal* (Vol. IV, 1905) is as follows:—

" The Wonderboom is a remarkable tree. . . . It forms a large hemispherical mass covered with evergreen leaves and small figs. Its diameter from N.N.E. to S.S.W. is 162½ feet, and from E. to W. 141½ feet. Its height, as estimated by a certain method, is 67 feet.

" The tree spreads in a peculiar manner. Some of the branches from the centre spread out laterally in a radial direction and gradually droop towards the ground. At a distance of about 30 feet they come into contact with it and send out roots from which new groups of stems arise. From these other branches may be given off, still in the same radial direction, and these, coming in contact with the ground, may in their turn become rooted, and send up a third group of stems.

Die vroegste verwysing na die Boom wat ek kon vind, was dat dr. W. H. Atherstone een van die eerstes was om 'n takkie van die boom te bewaar. Dit moes in 1873 gewees het, want ons weet dat hy in daardie jaar Pretoria tydens sy tweede tog na die Lydenburgse goudvelde besoek het.

Nog 'n verdere verwysing is dié van mnr. R. Atcherly in 'n boek wat in 1879 onder die naam „ A Trip to Boerland " uitgegee is, en 'n eksemplaar waarvan in die Don-versameling in die Durbanse biblioteek te vinde is. Daarin sê hy: „Saam met 'n hele aantal mense het ek 'n uitstappie na die Wonderboom geniet; daardie heilige vyeboom wat 'n paar myl benoorde Pretoria groei. Om daar te kom, moes ons deur die Poort deur die Magaliesberg ry en ek het 'n uitstekende geleentheid gehad om die omgewing te sien. Die Wonderboom het egter sy naam geloënstraf. Moontlik het dit 'n paar jaar gelede 'n indrukwekkende voorkoms gehad, maar tans is die worteltakke afgekap en as brandhout gebruik, en daar bly niks oor behalwe 'n verskimmelde, toiingrige stam nie."

In die boek „ In the Land of Misfortune ", deur lady Florence Dixie, wat in 1882 uitgegee is, vind ons op bladsy 210 die volgende:—

„ Nadat ons die oggend se sake afgehandel het, en middagete geniet het, het 'n groot groep van ons vir Sir Evelyn Wood, genl. Bellairs en kol. Gildea te perd na die Wonderboompoort, sowat ses myl benoorde Pretoria, vergesel. As vesting is hierdie poort geweldig sterk aangesien dit net uit 'n nou bergpas bestaan wat weerskante deur hoë, rotsagtige berge oorheers word. 'n Pasgeboude pad loop deur die pas, maar voordat hierdie pad gemaak is, kon ossewaens net oor die bed van die Apiesrivier deur die Poort trek. Hierdie rivier is geensins diep nie, maar nogtans baie ongelyk en klipperig. Die deurtog moes vir beide mens en dier baie moeilik gewees het . . .

„ Verder ooswaarts kon ons later die pad oor die nek sien ,(Voortrekkernek)' met die sterk verdedigingskanse wat die Boere gebou en beset het. Dusdoende het hulle die enigste twee verbindingsweë met die gebiede benoorde die Wonderboompoort beheers, afgesien waarvan hulle 'n laer van sowat twintig waens op die regteroewer van die Apiesrivier en nog verder noord as hulle hoofkwartier gekies het.

„ Die rit deur die berg was buitengewoon aangenaam. Die angswekkende kranse wat ons aan weerskante oorskadu het, het soos twee uitdagende duiwels gestaan, net reg om ons toe te val en met hul massiewe gewig te vergruis. Orals het bome en varings weelderig gegroei, en die gekabbel van die water in die rivier wat oor sy klipperige bed gevloei het, was 'n aangename en strelende geluid wat baie tot die sjarme van 'n indrukwekkende maar tog vreesaanjaende toneel bygedra het.

„ Een van die hooftonele wat ons gretiglik daardie dag wou sien, was die groot Wonderboom (Wonderful Tree) wat gegroei en tot so 'n mate vergroot het dat hy hierdie naam verwerf het. Onder sy wonderbaarlike dak kon etlike honderde mense, soos reeds gesê, skuiling vind. Inderdaad, nadat ons deur die Poort gery het en 'n rietbegroeide meer verby was waaruit die geroep van wilde eende gehoor kon word, het die boom met sy swaar massa blare in die gesigsveld verskyn en soos 'n groot reus tussen die betreklik kleiner plantegroei om hom heen gelyk.

" From measurements made on the spot we found an inner ring of nine groups surrounding the main central mass, three of them *still connected* to it by their drooping branches.

" The circumference of the central mass of stem is 81 feet, and the second group forms approximately a circle at an average distance of about 30 feet. Beyond the ring there were three other groups at a distance of about 25 feet from the outside of the ring, still connected by the branches from which they had originated."

The tree, of course, covers a slightly larger area of ground today, and the height is at least 74 feet.

One of the tragedies in connection with this tree is that hardly any of the loop connections remain today. Those from the original or main stem have been chopped off, and only one in the secondary circle is left; even this is badly mutilated.

The famous tree has often been styled " The Historical Wonderboom ". I can find no justification for the title in the sense of any historical event having been associated with it. Its connection with Pretoria has always been a source of added interest. I have been to some pains in an endeavour to find any early references to the tree in literature; and I am indebted for the following notes to Miss M. Gunn, librarian of the Division of Botany, Pretoria.

The earliest record of the tree which I have been able to trace is that Dr. W. G. Atherstone was one of the first to preserve a specimen twig gathered from this tree. This must have been in 1873, for we know that he visited Pretoria in that year on his second trip to the Lydenburg goldfields.

Wonderboom Poort in days gone by.

Wonderboompoort in vervloë dae.

„Nadat ons die perde die spore gegee het, het etlike van ons resies gejaag om eerste by die plek aan te kom. Hierdie verspotte onderneming onder die warm son het beide onsself en ons perde baie warm gemaak, met die gevolg dat die koel skadu onder die groot boom dubbel aangenaam en verfrissend was. Ondersoek het aan die lig gebring dat die boom van indrukwekkende en buitengewone aard was. Die groter takke, so gou soos dit ontwikkel het, het na die aarde afgesak, wortel geskiet en nuwe lewe het uit die jonger telge van die ou stam voortgespruit.

„Ons was jammer dat ons rit nie vroeër in die dag begin het en ons middagete na hierdie aangename plek gestuur het nie waar ons 'n heerlike piekniek kon georganiseer het. Inderwaarheid was ons baie dors en die Apiesrivier was te ver om om te draai teneinde ons dors te les.

Tak met blare en vruggies.

Branch with leaves and small fruits.

Another early record is that by Mr. R. Atcherly, in a book published in 1879 entitled *A Trip to Boerland,* a copy of which is to be found in the Don Collections of the Durban Library.

In this he states: " In company with several others I enjoyed a trip to the Wonderboom, the Banyan tree growing some few miles to the north of Pretoria. In order to reach it we had to drive through the Poort or Pass through the Magaliesberg, and I had a fine opportunity of seeing the country. The Wonderboom, however, belied its name. Perhaps some few years ago it might have had a striking appearance; but at present the rooted branches have been chopped away for firewood, and nothing remains but a mouldy dilapidated stump."

Another early reference is contained in a book entitled *In the Land of Misfortune,* by Lady Florence Dixie, published in 1882. On page 210 she writes: " The business of the morning being over, and lunch disposed of, a large party of us accompanied Sir Evelyn Wood, General Bellairs, and Colonel Gildea on a ride to visit the Wonderboom Pass or Poort which lies six miles north of Pretoria. The natural strength of the position is immense, consisting as it does of a narrow gorge, commanded on either side by high rocky hills. A newly-constructed road runs through the pass, but ere it was made the only passage through for wagons consisted in the bed of the river Apies, which, by no means deep, is nevertheless very rough and stony, and must have proved difficult travelling both for man and beast . . .

" Away to the eastward, before entering the pass, we could make out the Nek Road " (Voortrekker Nek) " across which the Boers built a stone breastwork as a means of defence, and occupied it. They thus held the only two means of communication with the country north of the Wonderboom Poort, and in addition, a laager of some twenty wagons on the right bank of the Apies River, still farther north, was selected as their headquarters.

" The ride through the pass was exceedingly grand, the gaunt rocky heights overlooking us on either side like two defying demons about to fall and crush us with their massive weight. Trees and ferns grew everywhere luxuriously, and the gurgling of the river over its rocky bed was a pleasant and soothing sound, which added to the charm of an impressive and awe-inspiring scene. But one of the principal sights we were bent on seeing that day was the great Wonderboom, or Wonderful Tree, which had grown and extended to such a size as to give it this appellation. Under its wondrous canopy several hundred people, it was said, could find shelter, and indeed, when we had threaded the Pass and skirted a reedy lake from which the cry of Wild Duck arose, the tree, with its heavy mass of foliage hove in sight, looking like some huge giant amidst the comparatively dwarf vegetation that surrounded it.

" Putting spurs to our horses, several of us raced to reach the spot first, which foolish exploit under a hot sun made both ourselves and our horses very hot, and rendered the dark, cool shade of the great tree doubly acceptable and refreshing. Examination proved it to be of an ambitious and progressive nature, the larger branches as soon as they become developed, drooping earthwards until, taking root, fresh life springs forth from the younger scions of the old stem.

„Afgesien van die laer waarna ek netnou verwys het, is my gesaghebbend meegedeel dat die Waterbergkommando onder die boom uitgekamp het. Die boom kon 'n hele regiment soldate verberg of skuiling aan 22 waens met 20 osse elk bied."

Voor sy dood het dr. Austin Roberts, die soogdierkundige van die Transvaalse Museum en vooraanstaande lid van die Ornitologiese Vereniging van Suid-Afrika, in 'n artikel oor die Kleinwonderboom wat op 29 Oktober 1929 in die *Star* verskyn het, gesê dat hy nie minder nie as 200 verskillende soorte voëls in die bos en op die berghange waargeneem het. Indien die meer waarna so pas verwys is, sou herstel word deur die Apiesrivier op te dam en die gebied beskerm sou word, dan sou daar tenminste nog 'n 120 of meer voëlsoorte bykom.

'n Paar biologiese aantekeninge is miskien van belang. Ofskoon meesal immergroen, weet ek tog dat die Wonderboom al sy blare by drie verskillende en wydverspreide geleenthede verloor het, waarvan die laaste twee deur 'n tussenpose van elf jaar van mekaar geskei was. Aangesien die boom sy blare nie as gevolg van 'n massa-aanval deur insekte, nóg as gevolg van swam- of bakteriese besmetting, verloor het nie en daar die jaargetye oënskynlik normaal was, is dit moontlik dat dit na 'n kringloop van jare weer verwag kan word.

Die Wonderboom is met sukses van saad gekweek, nie net in Pretoria nie, maar ook van vrugte wat na die Verenigde State gestuur is. In 'n skets van die boom wat saam met prof. Wager se artikel gepubliseer is, is daar 'n ontsaglike gaping in die sekondêre groep aan die W.S.W. kant. Dit is die geval sover dit die Wonderboom se afstammelinge betref, maar die gaping bestaan in werklikheid nie omdat dit deur 'n boomsoort met 'n enkele stam, nl. *Clerodendron glabrum* E. Mey, gevul word. Hierdie is 'n bladwisselende boom waarvan heelwat in die reservaat aangetref word en wat ook deur voëls versprei word. Dit is egter noemenswaardig dat hierdie besondere boom moontlik die grootste in die distrik is vanweë die beskerming wat hy oor 'n lang tydperk deur sy posisie onder die Wonderboom geniet het.

(REDAKSIONELE OPMERKING.—Mnr Mogg was baie jare 'n vooraanstaande lid van die Wonderboom-Aankoopkomitee, die Raadgewende Wonderboom-Komitee en die Raadgewende Komitee vir Pretoriase Reservate. Hy het 'n belangrike rol in die langdurige onderhandelings gespeel wat die aankoop van die Wonderboom-reservaat deur die Stadsraad voorafgegaan het en het altyd 'n lewendige belangstelling in die ontwikkeling van die gebied getoon.)

" We regretted that we had not started on our ride earlier in the day and sent on our lunch to this delightful spot, where a very pleasant picnic might have been organised. As it was, we were very thirsty, and the river Apies lay too far off to return for the purpose of slaking our thirst.

" Besides the laager above referred to, I learn on good authority that the Waterberg Commando was quartered beneath the tree. The tree can conceal a regiment of soldiers or accommodate over twenty-two wagons of twenty oxen each."

Another reference to the area comes from the pen of the late Dr. Austin Roberts, a mammologist on the staff of the Transvaal Museum and a leading member of the Ornithological Society of South Africa. In an article in connection with the Klein Wonderboom which appeared in the *Star* of 29th October, 1929, he stated that he had recorded no less than 200 distinct species of birds in the bush and mountain slopes alone. If the lake previously referred to, were restored by damming up the Apies River, and the area given some protection, then quite 120 more species of birds might be found.

A few biological notes may be of interest: Although usually an evergreen, I have known the Wonderboom to become completely defoliated on three distinct, widely separated occasions, the last two being at an interval of eleven years. As the shedding of its leaves was not occasioned by mass insect attack, nor by fungal or bacterial infection, and the seasons were apparently average, it may be that this is a cyclic change, and must be looked for again.

The Wonderboom has been successfully raised from seed not only in Pretoria, but from fruits sent to the United States.

In the plan of the tree published with Prof. Wager's article, an apparent gap in the secondary circle occurs on the W.S.W. aspect. This is true as regards the Wonderboom's offspring, but the gap is not real as it is occupied by another species of tree, a single-boled specimen of *Clerodendron glabrum* E. Mey, a deciduous tree which occurs commonly in the Reserve—also bird distributed. Only, this particular specimen is perhaps the largest in the district, owing to the protection it has enjoyed over a very long period from its position in close association with the Wonderboom.

(Editorial Note.—Mr. Mogg was for many years a prominent member of the Wonderboom Purchase Committee, the Wonderboom Advisory Committee and the Pretoria Reserves Advisory Committee. He played a prominent role in the protracted negotiations that preceded the purchase of the Wonderboom Reserve by the City Council and has always shown an active interest in its development.)

ASPEKTE VAN DIE GEOLOGIE VAN DIE WONDERBOOM-NATUURRESERVAAT

deur Dr. D. J. L. Visser

DIE Wonderboom-reservaat beslaan 'n klein gedeelte van die Magaliesberg en dit word aan die westekant begrens deur die Apiesrivier en aan die oostekant deur die verlenging van Voortrekkerweg oor Wonderboomnek. Die noordelike grens gaan so 'n rapsie meer as 100 tree noord van die Wonderboom verby terwyl Lombardstraat in Wonderboom-Suid dit aan die suidekant begrens.

Kranse aan die Suidwestelike hange van die Rant in die Natuurreservaat.

Krantzes on the South-Western slopes of the hill in the Nature Reserve.

'n Geologiese kaart van die reservaat is met behulp van lugfoto's opgestel terwyl sekere kleiner besonderhede op 'n kontoerkaart op groot skaal aangeteken is, wat vir die doel verskaf is.

Die skrywer hiervan het, nadat hy die gebied etlike kere deurkruis en die geologiese formasies wat daar voorkom op die lugfoto's en die kaart aangeteken het, hom verder toegespits op die bestaande paaie en in die besonder op die voetpaadjies wat reeds uitgelê is. Min besoekers sal ooit van hierdie gebaande weë afdwaal om vir hulself 'n weg te vind oor die heuwelglooiings wat met rotsblokke bestrooi en gedeeltelik ook met gras begroei is. Die besoeker sal terloops mooi voorbeelde van kruisgelaagde kwartsiet met golfriffels op die plaveistene in die voetpaadjies sien. Vir hierdie voorsorg dien die Departement Parke gelukgewens te word.

ASPECTS OF THE GEOLOGY OF THE WONDERBOOM NATURE RESERVE

by Dr. D. J. L. Visser

THE Wonderboom Reserve is a small portion of the Magaliesberg, bounded on the west by the Apies River and on the east and north-east by the extension of Voortrekker Road across Wonderboom Nek. Its northern boundary runs just more than 100 yards north of the "Wonderboom" while Lombard Street, Wonderboom South, is its southern boundary. It was mapped geologically with the aid of air photographs while minor details were entered on a large-scale contour plan provided for the purpose.

The writer, after several traverses across the area, during which the general geology was plotted on the air photographs and the map, concentrated on the existing roads and the footpaths which have already been paved, because few visitors will ever wander off these beaten tracks to find a way for themselves over the rough, barren dip-slopes of quartzite or over the boulder-strewn hillslopes partly overgrown with grass. Incidentally, the visitor will see fine examples of current-bedded and ripple-marked quartzite displayed at their best as paving stones in the footpaths, a foresight for which the Parks Department is indeed to be congratulated.

A Nature trail in the Wonderboom Nature Reserve.

'n Natuurpaadjie in die Wonderboom-natuurreservaat.

Considering the general geology of the area, a two-fold division is at once apparent from the topography. On the south side of the ridge, the hillslope is smooth and gentle and overgrown with grass and few

Wat die algemene geologie van die gebied betref, is 'n tweeledige indeling moontlik soos ook blyk uit die topografie. Aan die suidekant van die rant is die heuwelskuinste glad en val met verdrag, en dit is begroei met gras en enkele verspreide bome. Naby die kruin van die rant vorm die kwartsiet, wat baie bestand is teen verwering, prominente kranse wat suidwaarts front, terwyl 'n steil glooiing, wat met die helling van die lae saamval en dig met bosse en bome begroei is, na die noorde toe front. Hierdie kenmerkende verskil word teweeggebring deur die aanwesigheid van *skalie* onderkant die dik laag kwartsiet wat die kruin en die noordelike hang van die rant vorm. Die skalie dagsoom nêrens goed nie; daar moet trouens stelselmatig daarvoor gesoek word aangesien die heuwelskuinstes bedek is met 'n laag rotspuin wat gewoonlik slegs 'n voet of twee dik is maar in 'n uitgrawing aan die suidwestekant van die rant meer as ses voet dik is, en wat hoofsaaklik uit kwartsiet en enkele rotsblokke horingsteen bestaan. Die skalie kan egter net buitekant die suidelike grens van die reservaat, aan die kant van Lombardstraat, gesien word.

Omtrent halfpad teen die rant op, en reg suid van die ou fort bo-op die rant, is daar 'n uitgrawing en 'n soeksloot 'n klein endjie van eersgenoemde, waarin die skalie weer blootgelê is. Hier is dit egter gebak tot 'n harde, swart, byna vuursteenagtige horingsteen wat tot ronde, swart rotsblokke verweer. Hierdie horingsteen word ook aan die suidwestekant van die rant aangetref, net voordat 'n mens afdaal op die spoelterras langs die Apiesrivier.

Die rede waarom die skalie so gebak en verander is, moet klaarblyklik by *stollingsgesteentes* gesoek word wat daarin gedring het. Getuienis vir die aanwesigheid van twee sulke massas stollingsgesteente, in die vorm van plate diabaas, is dan ook gevind. Rotsblokke wat die posisie van die onderste plaat aandui, is in plek gevind sowat 600 tree wes van Voortrekkerweg en ongeveer 120 tree noord van Lombardstraat, op 'n plek waar die rant skielik aanmerklik steiler word. Die voortsetting daarvan na die ooste en na die weste toe kan afgelei word van die effens rooier kleur van die grondlaag aan die oppervlak.

Die tweede plaat het ingedring op die kontak van die skalie en die kwartsiet wat daarop volg. Dit dagsoom net onderkant die kwartsiet, sowat 250 tree wes van Voortrekkerweg en ongeveer 70 tree suid van die pad wat na die ou fort lei, waar daar oor 'n klein oppervlak 'n menigte bleekgroengrys diabaasrotsblokke dig op mekaar gestapel lê. Hulle vorm 'n skerp teenstelling met die hoekige brokstukke wit kwartsiet wat rondom, en gedeeltelik daarop, aangetref word.

'n Derde plaat het in die kwartsiet ingedring maar is nêrens blootgelê nie, behalwe vir 'n paar afgesonderde rotsblokke naby die pad en net suid van die ou fort. Die aanwesigheid van hierdie diabaasplaat word verder verraai deur die diep rooi grond in 'n uitgrawing naby die skerp draai in die pad. Omdat die diabaas, in teenstelling met die kwartsiet, so maklik verweer, word die posisie daarvan in die veld aangedui deur 'n kaal, gladde strook onderkant die kwartsietkranse, en dit beslaan dus die duik wat wes van die fort na die Apiesrivier afloop.

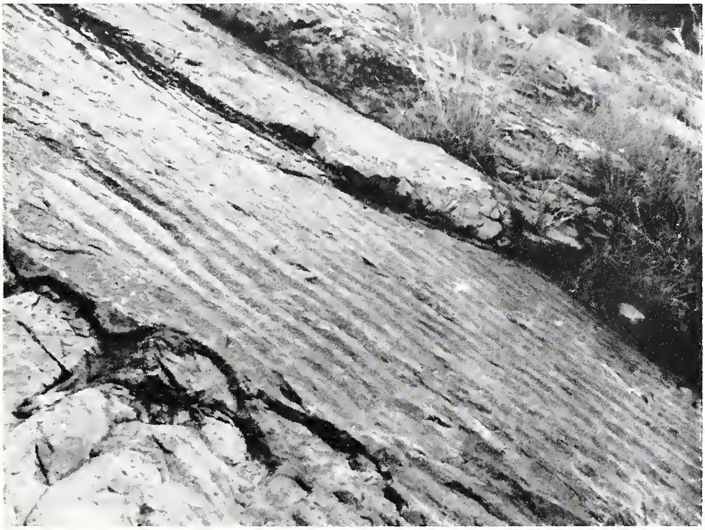
Die *kwartsiet* is gewoonlik wit tot ligroos van kleur en kom in dik lae voor, hoewel enkele lagies soms minder as 'n duim dik is. Dit het

scattered trees. Near the crest the weather-resisting quartzites form bold krantzes facing southwards while a steep dipslope, rather densely overgrown with bush and trees, faces northwards.

This striking difference is brought about by the presence of shales below the succession of thickly-bedded quartzites which determine the ridge proper. The shales are never well exposed, and outcrops have to be searched for carefully, as the hillslope is blanketed by a cover of rock rubble composed mainly of quartzite and an occasional boulder of hornfels. This cover is usually a few feet thick; in an excavation on the south-western flank of the hill it is more than six feet thick. Shales have, however, been exposed just beyond the southern boundary of the reserve, in Lombard Street, when the latter was graded.

The next exposures are found in an excavation and in a trench nearby, about half-way up the hill and due south of the old fort. Here the shales show signs of having been baked to a hard black, almost flinty hornfels, which weathers into rounded black boulders. On the south-western flank of the hill, just before one descends on to the alluvial terrace leading towards the Apies River, the hornfelses are found exposed again.

The cause for this baking and alteration of the shale to hornfels must evidently be sought in some igneous rock which has been intruded into it and evidence, although scanty, for the presence of two sheets of diabase has been found. Boulders which reveal the presence of the lowermost sheet are found " in place " some 600 yards west of Voortrekker Road and roughly 120 yards north of Lombard Street, at a point where the hill suddenly steepens markedly. Its continuation to the east and west has been inferred from the slightly redder colour of the overlying soil.



Symmetrical ripple-marks on bedding-plane in Magaliesberg quartzite.

Simmetriese golfriffels op laagvlak in Magaliesbergkwartsiet.

teen 'n hoek van gemiddeld 40 grade na die noorde. Daar is drie interessante kenmerke van die kwartsiet wat die aandag trek van persone wat wetenskaplik aangelê is. Hulle is *nate, golfriffels* en *gekruiste gelaagdheid.*

Nate is gewoonlik volop maar selde 'n treffende kenmerk en hulle kan in vier stelle ingedeel word, nl.—

(i) 'n stel wat naastenby oos-wes loop en as strekkingsnate bekend is. Hulle hel gewoonlik teen sowat 50 grade na die suide en is verantwoordelik vir die gladde vlakke aan die voorkant van die steil kranse wat na die suide toe front;

(ii) 'n stel wat noord-suid loop en as hellingnate bekend staan. Hulle is gewoonlik vertikaal of slegs effens van die vertikaal af en is as reguit krake op die vlakke van die strekkingsnate sigbaar;

(iii) twee stelle, waarvan die een noordoos-suidwes; en

(iv) die ander noordwes-suidoos georiënteer is. Hulle is ook vertikaal of naastenby vertikaal maar hulle is in hierdie opsig belangrik dat die gesteentelae aan weerskante van hulle 'n klein hoeveelheid versit of verskuif is. Die kwartsiet is terselfdertyd ook geskuifskeur en gebreek (of gebreksieer) en aarkwarts is langs die breuke, wat gewoonlik oop is, ingeplaas en dien om die kwartsietbrokstukke aanmekaar te sementeer. Hierdie aarkwarts toon gewoonlik die tipiese kamstruktuur.

Gekruiste gelaagdheid in Magaliesbergkwartsiet.

Cross-bedding in Magaliesberg quartzite.

The second sheet has been intruded on the contact between the shale and the overlying quartzite. It crops out below the quartzites some 250 yards west of Voortrekker Road and approximately 70 yards south of the road leading to the old fort, where over a small area rounded boulders of pale greenish-grey diabase lie closely packed. They contrast sharply with the angular fragments of white, overlying quartzite. A third sheet has been intruded in the quartzite. Except for a few isolated boulders near the road, south of the old fort, and for the presence of the deep red soil in an excavation near the sharp bend in the road, the rock is nowhere exposed. Because the rock weathers so readily, in contrast with the quartzites, its position in the field is marked by a smooth belt below the krantzes of quartzites, and it occupies the depression west of the fort, leading down to the Apies River.

The *quartzites* are whitish to pale pinkish, thickly bedded as a rule, though individual layers are often less than an inch thick. They dip to the north at an average angle of 40°. There are three interesting features of the quartzites to meet the eye of the scientifically minded, namely *jointing, current bedding,* and *ripple marking.*

Jointing, although prolific, is seldom a striking feature. Joints may be grouped into four sets, viz.—

(i) A set running roughly east-west and known as strike joints. They usually dip to the south at angles of 50° or more and along the steep krantzes facing to the south these joint planes are readily seen;

(ii) a set running north-south and known as dip joints. They are usually vertical or inclined a little off the vertical and show up as straight cracks on the strike joint planes;

(iii) a set running roughly north-east and south-west, and

(iv) another set running roughly north-west and south-east.

They are also vertical or very nearly so, but are of particular interest in this respect that along them a small amount of displacement or faulting has taken place. At the same time the quartzites have been sheared and fractured (or brecciated) and vein quartz has entered along the fractures, which are usually open, to cement the quartzite fragments. This vein quartz usually shows the typical comb structure.

Current bedding and *ripple marking* indicate conditions of sedimentation in shallow water, i.e. just off the shore of the basin in which the sediments accumulated. In current-bedded sediments individual beds, which may be a foot or more thick, are composed of many thin layers an inch or less thick, which are inclined at angles varying from 30° to 50° to the major bedding planes. The dip of the secondary layers is in the downstream direction. Current-bedded deposits usually form at the mouths of streams, where they enter the basin of sedimentation. Several fine examples may be studied on joint planes in the quartzites and many more are found on paving slabs in the footpaths.

Examples of *ripple marking* are to be found all over the northern half of the reserve. Apart from those preserved on paving stones in the footpaths there are many to be seen on bedding planes next to the footpaths. The ripple marks have many interesting characteristics which may be observed with advantage in the many exposures. In general the crest lines of ripple marks are very nearly parallel, indicating normal conditions

Gekruiste gelaagdheid en *golfriffels* dui aan dat afsetting in vlak water plaasgevind het, d.w.s. net weg van die kus af van die kom waarin die afsettings versamel het. In die kruisgelaagde afsettings is die afsonderlike lae, wat 'n voet of meer dik is, saamgestel uit 'n menigte dun lagies, 'n duim of minder as 'n duim dik, wat teen hoeke van 30 tot 50 grade geöriënteer is met betrekking tot die hooflaagvlakke. Die helling van die ondergeskikte lae is in die stroomaf-rigting. Kruisgelaagde afsettings word gewoonlik by die mondings van riviere gevorm, waar laasgenoemdes in die afsettingskom uitmond. Verskeie goeie voorbeelde hiervan kan op naatvlakke in die kwartsiet waargeneem word, en baie meer word op plaveistene in die voetpaaie aangetref.

Voorbeelde van *golfriffels* word orals in die noordelike helfte van die reservaat aangetref. Behalwe die wat op plaveistene in die voetpaaie bewaar gebly het, kan nog baie ander gesien word op laagvlakke langs die voetpaaie. Die golfriffels besit heelwat interessante kenmerke wat voordelig waargeneem kan word in die baie dagsome. Oor die algemeen is die kruinlyne van die golfriffels naastenby ewewydig aan mekaar, wat normale vloei van strome in een rigting aandui. In sulke gevalle het al die golfriffels min of meer dieselfde vorm. Voorbeelde word egter teengekom waar die vorm van die golfriffels onreëlmatig is en hulle mekaar kruis, of een stel gedeeltelik deur 'n ander uitgewis word. Dit dui op dwarsstrominge of draaikolke.

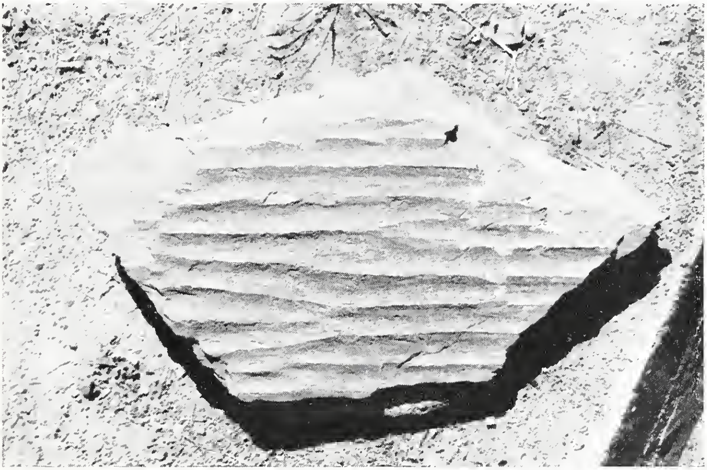
'n Tweede interessante verskynsel het betrekking op die periode van die golfriffels, d.w.s. die afstand van kruin tot kruin. In die meeste voorbeelde wat ondersoek is, is die kruinlyne etlike duime van mekaar af. 'n Paar voorbeelde is egter teengekom waar die kruinlyne minder as 'n duim van mekaar is. In hierdie gevalle is die amplitude, d.w.s. die diepte van kruin tot trog, ook baie geringer as gewoonlik. Dit dui op vlakker, snellervloeiende strome as die wat gewoonlik in die gebied bedrywig was.

'n Derde verskynsel wat waargeneem kan word, is die vorm van die golfriffels. Die meeste het 'n asimmetriese vorm, d.w.s. 'n lang, plat skuinste aan die een kant van die kruin en 'n kort, steil skuinste aan die ander kant. Hierdie soort golfriffel word gewoonlik op die bedding van vloeiende strome gevorm, en die lang, vlak skuinste wys stroomop terwyl die kort, steil hang stroomaf gerig is. Die kruinlyn is gewoonlik reghoekig op die rigting waarin die stroom vloei.

Deur hierdie verskynsels te bestudeer, kan die vloeirigting van die stroom of strome vasgestel word. By 'n menigte voorbeelde van golfriffels wat op onversteurde laagvlakke waargeneem is, is bepaal dat die kruinlyne in 'n rigting noordoos tot suidwes geöriënteer is en dat die lang, vlak skuinstes van die riffels na die suidooste toe front en die kort, steil hange na die noordooste toe. Die strome wat die afsettings aangespoel het, het dus hul oorsprong iewers suidoos van die gebied onder bespreking gehad.

of streams flow in one direction. In such cases all ripple marks have very nearly the same shape. Instances are encountered when ripple marks are very irregular in shape and intersect one another, or one set is partly obliterated by another. This indicates cross-currents or eddies.

A second interesting feature relates to the period of the ripple marks, i.e. the distance from crest to crest. In most of the examples examined the crest lines are several inches apart. A few have been observed where the crest lines are less than an inch apart. In this case the amplitude too, i.e. the depth from crest to trough, is much smaller than in general. This indicates shallower, faster flowing streams compared with what is generally found.



Symmetrical ripple-marks in Magaliesberg quartzite.

Simmetriese golfriffels in Magaliesbergkwartsiet.

A third feature to be observed is the shape of the ripple marks. Most are asymmetrical in shape, with a long, gentle slope on one side of the crest line and a very short, steep slope on the other. This type of ripple marks is usually formed on the beds of flowing streams, the long, gentle slope facing upstream and the short, steep slope downstream. The crest line is usually at right angles to the direction of stream flow.

From a study of these features the direction of stream flow may be inferred. Now it has been found that in the many examples of ripple marks on undisturbed bedding planes the crest lines are orientated in a north-east and south-west direction and the ripples have their long, gentle slopes pointing towards the south-east and the short, steep slopes towards the north-west. The streams carrying the sediment, therefore, had their sources somewhere to the south-east of the present area.

DIE WONDERBOOMFORT

deur H. P. H. Behrens

(Stedelike Skakelbeampte, Stadsraad van Pretoria)

Die ingang tot die Wonderboomfort soos dit tans daar uitsien.

Entrance to the Wonderboom Fort to-day.

DIE oorblyfsels van die Wonderboomfort wat naby die kruin van die berg in die reservaat geleë en voor die Suid-Afrikaanse Oorlog vir die verdediging van Pretoria gebou is, vorm 'n interessante skakel met die verlede.

Altesaam is vier forte vir omtrent £150,000 gebou, maar toe die Britse troepe teen Pretoria opgeruk het, was dit heeltemal duidelik dat die forte nutteloos was vir die doel waarvoor hulle gebou is.

Generaal Louis Botha, Kommandant-Generaal van die Republikeinse magte, het al die ammunisie en kanonne uit die forte laat verwyder met die gevolg dat toe Lord Roberts se troepe in Junie 1900 Pretoria binnegetrek het, daar geen enkele skoot uit hierdie forte gevuur is nie.

Benewens die Wonderboomfort was daar forte te Klapperkop, Skanskop en Westfort gebou. In 1936 is die Skanskop- en die Klapperkopfort tot nasionale monumente verklaar en aan die sorg van die munisipaliteit oorgedra. Toe die Tweede Wêreldoorlog uitbreek, is hierdie twee forte deur die militêre owerhede in gebruik geneem. Hulle is in Januarie 1951 ontruim en word nou weer deur die munisipaliteit in stand gehou.

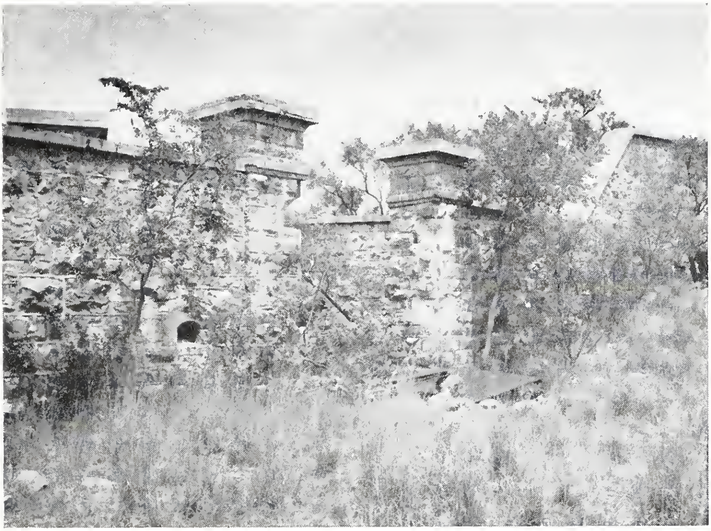
THE WONDERBOOM FORT

by H. P. H. Behrens

(Public Relations Officer, City Council of Pretoria)

THE remains of the Wonderboom Fort near the top of the mountain in the Reserve, which was built prior to the South African War for the defence of Pretoria, forms an interesting link with the past.

Altogether four forts were built for about £150,000. But when the British troops advanced on Pretoria, it was quite obvious that the forts were useless for the purpose for which they were built.

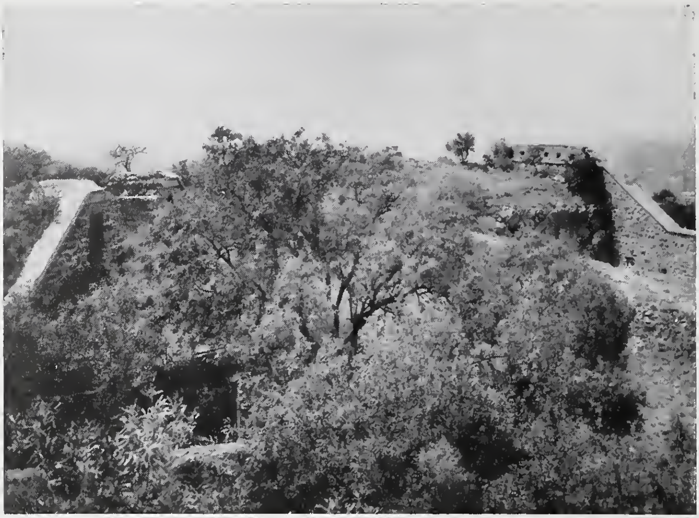


The entrance to the Wonderboom Fort seen from the inside of the Fort. Note the damage done to the entrance pillars as particularly visible on the pillar on the right.

Die ingang tot die Wonderboomfort vanaf die binnekant geneem. Let op die beskadiging van die ingangspilare wat veral duidelik sigbaar is op die pilaar aan die regterkant.

General Louis Botha, Commandant General of the Republican forces, had all the ammunition and guns removed from the forts with the result that when Lord Roberts's troops entered Pretoria in June, 1900, not a single shot was fired from these forts.

In addition to the Wonderboom Fort others were built at Klapperkop, Skanskop and Westfort. In 1936 the Skanskop and Klapperkop Forts were declared national monuments and entrusted to the care of the municipality. When the Second World War broke out these two forts were up to January, 1951, used by the military authorities. They are now again maintained by the municipality.



Oostelike uitsig uit Wonderboomfort met standhoudende fontein links op voorgrond.

Looking East from Wonderboom Fort with perennial fountain on left fore-ground.

Die Wonderboomfort is nie as nasionale monument verklaar nie en soos die foto's toon, is dit nie net deur mensehande beskadig nie, maar is daar ook 'n weelderige plantegroei binne die gebied wat voorheen die fort uitgemaak het. Die beskadiging van die een ingangspilaar is veroorsaak deur persone wat gemeen het dat die denkbeeldige Krugermiljoene moontlik hier weggebêre is.

Wonderboom Fort was not proclaimed a national monument, and as the photographs show, it was damaged not only by human hands but there is also luxuriant vegetation within the area that formerly constituted the fort. The damage to one of the entrance pillars was caused by fortune-hunters who thought that the imaginary Kruger millions might possibly be hidden in it.

DIE WONDERBOOMGROTTE

deur mev. E. J. Maynhard

IN die Wonderboom-natuurreservaat, teenoor die Wonderboompoort, is daar twee grotte, een onderkant die ander. Hierdie grotte kom voor in die Magaliesbergkwartsiete waaruit die berg bestaan. Die kwartsiete hel teen 'n betreklik steil hoek en 'n swak gebreksieerde laag tussen twee sterker lae het wegverweer. Op hierdie manier het die grotte ontstaan. Die onderste en kleinste grot kan maklik van die rivier af bereik word met die gevolg dat die vloer baie verniel is deur besoekers en aspirant-opgrawers. Dit is ook die geval met die groter grot hoërop, maar dit is tog moontlik om die geskiedenis van hierdie grotte uit die beskikbare inligting te rekonstrueer.

Die mees opvallende kenmerk van die boonste grot is sy ligging. Vanaf die ingang verkry 'n mens 'n wonderlike uitsig oor die vallei aan weerskante van die Magaliesberg, asook oor die Wonderboompoort waardeur die Apiesrivier vloei. Om hierdie rede alleen is dit dus geen wonder dat die grot tekens van bewoning vanaf die vroegste tye toon nie. Die grot het een hoofkamer en 'n bykomstige kamer aan die een kant. Langs hierdie bykomstige kamer is 'n klein rotsskuiling. Die grot strek waarskynlik tot diep in die berg, maar die dak is laag en die gange so nou dat dit ondersoek bemoeilik. Water wat deur die dak syfer, maak dele van die kamers klam, veral in die somer, en dit is heeltemal moontlik dat daar, soos in die geval van baie ander Transvaalse grotte, dieper in hierdie grot water aanwesig is. In elk geval sou die rivier laeraf aan grotbewoners water voorsien.

Mnr. C. J. Swierstra, Direkteur van die Transvaalse Museum, het in Mei 1941 in 'n brief aan die Sekretaris van die Raadgewende Komitee oor Pretoriase Reservate as volg geskryf:—

> „Hierdie grotte het in die verlede baie aandag geniet en so vroeg as 1894-1899 het wyle mnr. Leith van hierdie dorp 'n aansienlike hoeveelheid klipwerktuie verwyder en 'n deeglike studie van die grotte gemaak. Baie daarvan is na Amerika en die Europese vasteland en andere is nog in die Leith-versameling in die Transvaalse Museum. In 1897 is die grotte besoek deur die welbekende natuurkundige, W. L. Distant, wat nie net aandag aan die klipwerktuie geskenk het nie, maar ook die laaste mens- en bobbejaanskedels wat hy kon vind, verwyder het. By 'n latere besoek, ek meen in 1905, deur sekere lede van die destydse ‚ Pretoria Naturalist Field Club ', was dit duidelik dat hierdie grotte reeds deeglik ondersoek was en dat daar waarskynlik niks meer van belang te vinde was nie."

Dit is jammer dat geen verslag oor die mens- en bobbejaanskedels verskyn het nie, maar die geskiedenis van die grot kan uit die klipwerktuie en ander voorwerpe wat uit die vloer van die kamers opgegrawe is, gerekonstrueer word.

Die eerste menslike bewoners van Suid-Afrika was die jagters van die Vroeë Steentydperk wat klippikke en -kappers gemaak het waarmee hulle wild gejag en eetbare wortels gegrawe het. Hierdie mense het baie

THE WONDERBOOM CAVES

by Mrs. E. J. Maynhard

IN the Wonderboom Nature Reserve, overlooking the Wonderboom Poort, are two caves, one below the other. These caves occur in the Magaliesberg quartzite of which the hill is formed. The quartzite dips at a fairly steep angle, and a weak brecciated stratum between two stronger strata has worn away. In this way the caves have been formed. The lower, smaller cave is easily accessible from the river, with the result that the floor has been greatly disturbed by visitors and would-be excavators. This is the case also in the larger, upper cave, but from the available information it is possible to reconstruct the history of these caves.

Entrance to main chamber of big (upper) cave.

Ingang na hoofkamer van groot (boonste) grot.

The most striking feature of the upper cave is its situation. Standing in front of the cave entrance, one has a wonderful view of the valley on either side of the Magaliesberg, as well as of the Wonderboom Poort through which flows the Apies River. For this reason alone, it is no wonder that the cave bears evidence of habitation from the earliest times. The cave has one large main entrance chamber and a subsidiary entrance chamber at one side. Beside this subsidiary entrance chamber is a small rock shelter. The cave probably extends a long way back into the hillside, but the roof is low and the passages so small that exploration is difficult. Water seeping through the roof makes parts of the entrance chambers damp, especially in summer, and it is quite probable that there is water further inside the cave, as happens in so many cases in Transvaal caves. At any rate, the river below would provide water for cave-dwellers.

duisende jare gelede gelewe en word in die Wonderboomgrotte verteenwoordig deur werktuie wat daar gevind is. Met verloop van tyd het hulle uitgesterf en die grot is as skuiling gebruik deur mense van die Middel-Steentydperk wat nie meer lomp pikke en kappers gebruik het nie, maar netjiese klip-pylpunte wat aan houtstele geheg is, vervaardig het. Na 'n lang tyd het hierdie mense van die Middel-Steentydperk uitgesterf of weggetrek en die grot is as woonplek gebruik deur mense van die Laat Steentydperk, die voorouers van die huidige Boesmans. Die mees tipiese van die klipwerktuie wat hulle in die grot gelaat het, is die deurboorde ronde klippe wat as knuppelhoofde of gewigte vir graafstokke gebruik is. Die Boesmans gebruik hierdie klippe ook en dit is dus nie onwaarskynlik dat hulle die grot ook bewoon het nie. Die mense van die Steentydperk, insluitende die Boesmans, was almal jagters wat niks van beesboerdery of die bewerking van grond geweet het nie. In vergange dae het die valleie om die huidige grense van Pretoria gewemel van wild en die Wonderboomgrot was 'n ideale spioenasiepos sowel as 'n skuiling teen die weer.

Teen ongeveer dieselfde tyd toe Van Riebeeck aan die Kaap geland het (1652 n.C.), het Bantoestamme uit die Noorde in Suid-Afrika ingetrek. Hierdie nuwelinge wat beesboere was, die grond bewerk het en die gebruike

'n Klein klofie onmiddellik Suidoos van die groot (boonste) grot.

A small kloof immediately South-East of the big (upper) cave.

Rock shelter beside subsidiary chamber of big (upper) cave.

Rots-skuiling langs bykomstige kamer van groot (boonste) grot.

In a letter to the Secretary of the Pretoria Reserves Advisory Committee in May, 1941, Mr. C. J. Swierstra, Director of the Transvaal Museum, wrote:—

> "These caves have had a considerable amount of attention in the past and as early as 1894-1899 the late Mr. Leith of this town removed a considerable amount of stone implements and made a thorough investigation of the caves. Many of these found their way to America and the European continent and others are still in the Leith collection which is now in the Transvaal Museum. In 1897 the caves were visited by the well-known naturalist, W. L. Distant, who not only paid attention to the stone implements but also removed the last human and baboon skulls he could find. At a subsequent visit, I believe in 1905, by some members of the now defunct Pretoria Naturalist Field Club, it was plain that these caves had already been thoroughly explored and nothing further of interest was likely to be found."

It is unfortunate that no report on the human and baboon skulls has been made, but the history of the cave can be reconstructed from the stone implements and other objects recovered from the floor of the entrance chambers.

The first human inhabitants of South Africa were the Early Stone Age hunters, who made stone picks and choppers with which they hunted game and dug edible roots. These people lived many thousands of years ago, and are represented in the Wonderboom Cave by implements which have been found there. In course of time they died out, and the cave was used as a shelter by Middle Stone Age folk, who no longer used the unwieldy picks and choppers, but fashioned trim stone spearheads which

van yster geken het, het die plaaslike inboorlinge óf doodgemaak óf as vrouens geneem. Die wat ontkom het, het na die Kalaharie gevlug waar hulle nog 'n karige bestaan voer. Met die verloop van tyd het die verskillende Bantoestamme hulle dwarsdeur die Transvaal gevestig en blykbaar 'n taamlik rustige lewe gely. Maar aan die begin van die negentiende eeu het die Soeloestam in Soeloeland as die grootste oorlogsmag in Suidelike Afrika verrys. Kort voor die eerste Voortrekkers in Transvaal aangekom het (± 1838 n.C.), het die Soeloekaptein, Tjaka, sy bure die skrik aangeja, hele stamme uitgeroei en andere wyd en syd verjaag. Een van Tjaka se generaals, genoem Moselekatse, het met sy mag weggetrek, die Transvaal binnegeval en geplunder en gemoor sover as hy gegaan het. Toe hulle van sy koms verneem het, het die verskrikte plaaslike stamme, soms vir jare, in die talle grotte wat oor die Suidwestelike Transvaal versprei is, weggekruip. In die Wonderboomgrot is potskerwe met 'n tipiese Bantoe oorsprong gevind en die plek is dus ongetwyfeld nie so lank gelede nie as 'n toevlugsoord gebruik.

Die Wonderboomgrot het dus 'n lang en wisselende geskiedenis gehad. Dit is 'n besoek werd terwille van die uitsig en omdat dit so tipies van die grotte is wat orals langs die Magaliesberg voorkom.

were hafted on to wooden shafts. After a long time these Middle Stone Age people died out or went elsewhere, and the cave was used as a dwelling-place by Later Stone Age folk, the ancestors of the present-day Bushmen. The most typical of the stone tools which they left in the cave are the spherical bored stones which were used as clubheads or as make-weights for digging-sticks. The Bushmen also used these stones, so it is not improbable that they, too, inhabited the cave. The Stone Age people, including the Bushmen, were all hunters, knowing nothing of keeping cattle or tilling the soil. In times past, the valleys round the present site of Pretoria teemed with game, and the Wonderboom Cave was an ideal vantage-point as well as being a shelter from the weather.

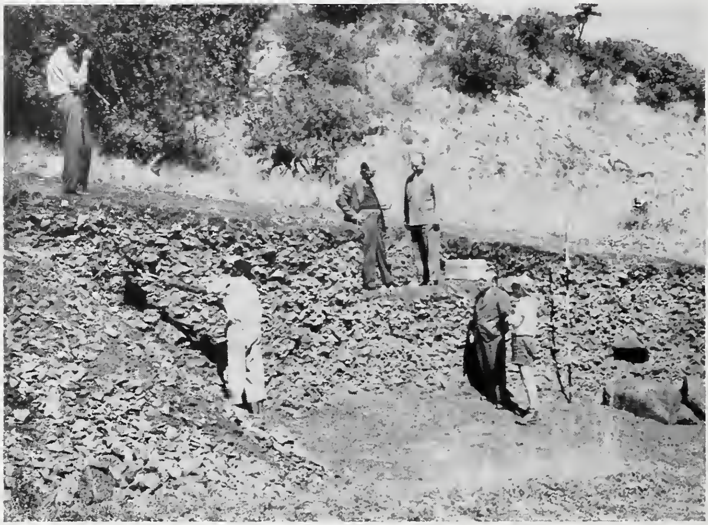
At much the same time as Van Riebeeck landed at the Cape (1652 A.D.) Bantu tribes were migrating into South Africa from the North. These newcomers, who were cattle-keepers, tillers of the soil and knew the use of iron, either killed off the local inhabitants or intermarried with them. Those who escaped, fled to the Kalahari where they still eke out a precarious existence. In course of time, the various Bantu tribes settled throughout the Transvaal and seem to have led a fairly peaceful existence. But the beginning of the nineteenth century saw the rise of the Zulu tribe in Zululand as the greatest military power in Southern Africa. Shortly before the first Voortrekkers arrived in the Transvaal (± 1838 A.D.), the Zulu Chief, Chaka, was terrorizing his neighbours, slaughtering whole tribes and scattering others far and wide. One of Chaka's generals, Moselekatse by name, broke away with his army and marched into the Transvaal, plundering and killing as he went. The terrified local tribes, hearing of his approach, hid, sometimes for years, in the numerous caves scattered over the South-Western Transvaal. Potsherds of typical Bantu manufacture have been found in the Wonderboom Cave, so the place was undoubtedly used as a refuge in recent times.

The Wonderboom Cave has thus had a long and varied history. It is worth visiting because of the view and also because it is so typical of the caves which occur all along the Magaliesberg.

STEENTYDPERKMENSE TE WONDERBOOM

deur Dr. H. M. E. Hanisch

NABY en oos van die Wonderboom-reservaat, met alleen Voortrekkernek as grens, is nog 'n stuk munisipale grond wat as 'n ongeproklameerde natuurreservaat bewaard word. Sy sentrale gedeelte is 'n kort, steil valleitjie wat wes-oos loop en waarin 'n munisipale opgaardam gebou is. Aan die noordekant word die vallei begrens deur steil rotse van die Magaliesberg, terwyl die suidelike hang bestaan uit 'n uitlopertjie wat verder ooswaarts geleidelik met die Magaliesberg saamsmelt.



Argeologiese fonds naby Wonderboom. Die foto, wat tydens die proef-opgrawings deur lede van die Argeologiese Opname in April 1957 geneem is, toon

Links: Mnr. P. Beaumont (Argeologiese Opname),
Mnr. H. P. H. Behrens (Stedelike Skakelbeampte, Stadsraad van Pretoria),
Dr. H. M. E. Hanisch (die ontdekker van die plek),
Mnr. B. D. Malan (Direkteur, Argeologiese Opname),
Mnr. R. J. Mason (Argeologiese Opname) —in kortbroek.

Links voor is 'n naturelle-werker besig om skoon te maak.

Archaeological site near Wonderboom. This photograph, taken during a trial excavation by members of the Archaeological Survey in April, 1957, shows:

Upper left: Mr. P. Beaumont (Archaeological Survey),
Mr. H. P. H. Behrens (Public Relations Officer, City Council of Pretoria),
Dr. H. M. E. Hanisch (the discoverer of the site),
Mr. B. D. Malan (Director of Archaeological Survey),
Mr. R. J. Mason (Archaeological Survey)—in shorts.

At the lower left a native is busy clearing up.

In hierdie vallei is daar in 1955 'n steentydperkafsetting ontdek wat, sover dit sy grootte betref, hoogswaarskynlik die rykste in die wêreld is.

STONE AGE MEN AT WONDERBOOM

by Dr. H. H. E. Hanisch

ADJOINING the Wonderboom Nature Reserve in the east and separated from it only by Voortrekker Road is another piece of municipal land which is being preserved as an unproclaimed nature reserve. Its central portion is a short, steep valley which runs west-east and in which a municipal water reservoir has been built. The valley is flanked in the north by the steep rocks of the Magaliesberg proper while the southern slope is formed by a foothill which further to the east gently merges with the Magaliesberg range.

It was in this valley that in 1955 a Stone Age site was discovered which for its size, is probably the richest in the world. The deposit is on the southern side of the valley just below the outcrop of quartzite which gives this foothill its characteristic shape.

It was fortunate that the municipality cut a road into the hill-side, thus exposing the site. The few implements found on the surface would have given no clue to the wealth of Stone Age material hidden at depth. The road opened up the deposit to a depth of between six to eight feet and as it extends still below road level, it is likely that at least ten to twelve feet of material have accumulated there. Nearly the whole deposit consists of tools, cores and waste flakes thrown away by Stone Age man when shaping his implements. The City Council of Pretoria is indeed fortunate to have this amazing collection of material within its boundaries, and archaeologists all over the country were grateful to the City Council for promptly fencing off the richest portion of the site thus preserving it for future study.

From research work carried out by the Archaeological Survey of the Union of South Africa, it will appear that this site is the only one within the Magaliesberg range and the question poses itself why just this little valley proved so popular with Stone Age men.

Men of the Old Stone Age used the hardest material they could find for making their implements and the quartzites which crop out here in abundance must have had all the properties which were required by those ancient toolmakers. They never touched the diabase which has intruded into the valley nor the outcrop of shale on the southern slope of the foothill.

Furthermore, the valley which was probably densely wooded in Old Stone Age times afforded excellent shelter against the cold winter winds blowing from the Eastern Transvaal Highveld and from the Witwatersrand in the south. A fountain from which water could be obtained was within easy walking distance to the east of the site.

From the nearby top of the foothill a magnificent view could be obtained of the plains on which the northern suburbs of Pretoria now stand. They were crossed by a perennial stream and the area must have teemed with game. The huge migrations of game which early European travellers in Southern Africa still witnessed, probably also took place 100,000 or 200,000 years ago when men of the Old Stone Age roamed

Die opgaarplek van die steentydperkimplemente is aan die suidekant van die vallei, net onderkant 'n kwartsietdagsoom wat aan die uitloper sy karakteristieke vorm gee.

Dit was 'n gelukkige toeval dat die munisipaliteit 'n pad in hierdie heuwelkant aangebou het waardeur die terrein blootgelê is. Die paar implemente wat op die oppervlakte gevind is, sou geen aanduiding verskaf het van die groot hoeveelheid steentydperkmateriaal wat dieper begrawe lê nie. Die pad het die neerslag tot 'n diepte van tussen ses en agt voet blootgelê en aangesien dit onder die padoppervlakte nog dieper gaan, is dit waarskynlik dat tenminste tien tot twaalf voet se materiaal daar opgehoop lê. Amper die hele neerslag bestaan uit implemente, kerne en afvalskilfers wat deur die steentydperkmens tydens die implementevorming weggegooi is. Die Stadsraad van Pretoria is inderdaad gelukkig dat hy so 'n verbasende versameling implemente binne sy grense het, en argeloë van oor die hele land is die Stadsraad dankbaar dat hy die rykste deel van die terrein onverwyld laat omhein het, en dit dusdoende vir toekomstige studie bewaar het.

Navorsingswerk deur die Suid-Afrikaanse Argeologiese Opname bring aan die lig dat hierdie terrein die enigste een in die Magaliesbergreeks is, en dit laat onmiddellik die vraag ontstaan hoekom hierdie vallei so gewild was by die oermense van die steentydperk.

Hierdie oermense het die hardste materiaal wat hulle kon vind, gebruik om hul implemente te vorm, en die verskillende kwartsiete wat hier so ryklik uitkom, moes al die eienskappe gehad het wat daardie oeroue implementmakers nodig gehad het. Hulle het nòg aan die diabaas wat in die vallei voorkom, nòg aan die skalie op die suidelike hang van die uitloper geraak.

Daarbenewens was die vallei in daardie vervloë steentydperk hoogswaarskynlik dig bebos en het dus uitstekende beskutting teen die koue winde van die Oos-Transvaalse Hoëveld en van die Witwatersrand in die suide gebied. Die fontein, binne kort loopafstand van die terrein, het die water gelewer.

Die nabye toppunt van die uitloper verskaf 'n uitstekende uitsig oor die vlakte waar tans die noordelike voorstede van Pretoria geleë is. 'n Standhoudende stroom deurkruis hierdie vlakte wat van wild moes gewemel het. Die reusagtige wildtrekke waarvan vroeë blanke reisigers in Suidelike Afrika nog ooggetuies was, het hoogswaarskynlik ook 'n honderdduisend tot tweehonderdduisend jaar gelede plaasgevind toe die oermens van die steentydperk nog in die Transvaal rondgeswerf het. Die Magaliesberg wat van Pretoria af tot in die Wes-Transvaal in 'n reguit lyn tagtig myl strek, was heelwaarskynlik 'n natuurlike hindernis vir die rondswerwende wild. In die hele bergreeks is daar net ses poorte waar antelope dit kon kruis. Een daarvan is naby Wonderboompoort. Met die begin van die winter het tienduisende antelope hoogswaarskynlik die Vaalrivier se suurveldgebied verlaat om beter weiveld en 'n aangenamer klimaat in die bosveld van Sentraal-Transvaal te soek. Die lewe was heelwaarskynlik baie maklik vir daardie vroeë jagters en die oorvloedige vleisvoorraad het blykbaar 'n mate van luiheid en traagheid aangewakker. Dit word bewys deur die feit dat baie afvalskilfers op die terrein tekens van gebruik toon. Daardie oermense het nie altyd moeite gedoen om mooigevormde implemente te maak om hul prooi mee af te slag nie.

the Transvaal. The Magaliesberg which stretches from Pretoria in a straight line 80 miles to the Western Transvaal must have acted as a barrier to these game migrations, and in the whole range there are only six gaps through which the antelopes could pass. One is at the near-by Wonderboom Poort. At the onset of winter tens of thousands of antelopes probably left the sourveld of the Vaal River area to find better pastures and a less rigid climate in the Bushveld of the Central Transvaal. Life must have been easy for these ancient hunters and the ample meat supplies seem to have encouraged a measure of indolence, as is evidenced by the fact that many waste flakes on the site show signs of usage. Those Stone Age men did not always take the trouble of making well-shaped tools for cutting up their prey.

Nevertheless, the Wonderboom dwellers could make beautiful specimens if they wanted to. They were highly skilled in their art and not having been rolled by water action, the tools are generally in a perfect state of preservation.

One of the interesting aspects of this site is the presence of large numbers of prepared cores of the Victoria West and the Tortoise types. The Victoria West technique, developed in South Africa tens of thousands of years before it made its appearance in Europe, was formerly considered to be confined to the Karroo areas of the Cape and the Western Free State. Cores of this type were rare north of the Vaal River. It is possible that the nature of the quartzite which crops out here in large quadrangular blocks, inspired the application of the Victoria West technique. Much more satisfactory results could probably be obtained by systematically reducing the large chunks, that had to be knocked off to manageable proportions, than by shattering them into fragments.

A puzzling aspect of the Wonderboom site is the great variety of tool types present. Implements which, if found in isolation, would appear to be separated by thousands of years lie side by side. Crude tools of Middle Stellenbosch appearance are found next to delicately chipped tools of Fauresmith type. Yet, all the available evidence suggests that the deposit belongs to a single cultural period. The multiformity of tools is unrivalled in the Union and the knowledge of stone age cultures will be greatly enhanced once it has been possible to assign this deposit to a specific period of the Old Stone Age.

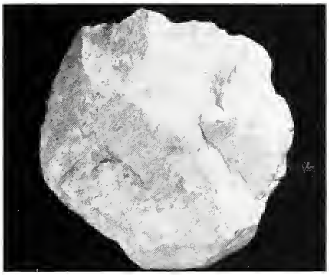
Even within a single tool type, such as the handaxe, there is no uniformity of pattern. Handaxes range from 9½ inches in length down to less than three inches. In shape, they vary from heavy Stellenbosch-IV types to neatly worked miniatures of Fauresmith affinities. Every intermediate form is represented. Some are high-backed, others again heart-shaped or oval. The latter gradually merge with oval-shaped scrapers of which there are many. These scrapers seem to have taken the place of the cleavers which are rather rare at this site. The few that have been found show similar variations in type as the handaxes. In some of them the sharp cutting or scraping edge has been formed by careful chipping instead of by the usual technique of knocking off one big flake. An interesting intermediate form is a tool shaped like a handaxe but with a chisel-like edge replacing the point.

Ewewel staan dit vas dat die Wonderboom-bewoners baie mooi implemente kon maak as hulle net wou. Hulle was uiters vaardig met hul kuns en omrede die implemente nie deur water heen en weer gerol is nie, het hulle meestal in 'n volmaakte toestand bewaar gebly. 'n Interessante verskynsel hier is die teenwoordigheid van groot getalle voorbereide kerne van die Victoria-Wes- en die skilpadtipe. Die Victoria-Wes-tegniek het tienduisende jare vroeër in Suid-Afrika ontwikkel as wat dit sy verskyning in Europa gemaak het. In die verlede is gemeen dat dit tot die Karroo-gebied van die Kaap en die Wes-Vrystaat beperk was. Kerne van hierdie tipe is seldsaam benoorde die Vaalrivier. Dit is moontlik dat die geaardheid van die kwartsiet wat hier in groot vierkantige blokke voorkom, die toepassing van die Victoria-Wes-tegniek geïnspireer het. Bevredigender resultate kon heelwaarskynlik verkry word deur die groot stukke wat afgeslaan moes word, tot hanteerbare formaat te verklein as om hulle in klein deeltjies te versplinter.

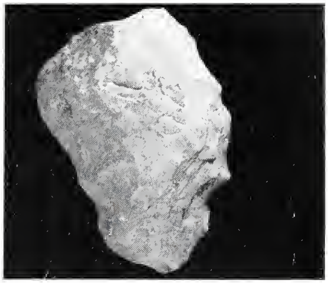
Die raaiselagtige ten opsigte van die Wonderboom-terrein is die groot verskeidenheid implementtipes wat daar aangetref word. Implemente lê daar langs mekaar wat, indien hulle alleen aangetref was, die skyn sou verwek het dat hulle deur duisende jare geskei is. Ruwe implemente van die Middel-Stellenbosche voorkoms word gevind saam met fyn-afgewerkte implemente van die Fauresmith-tipe. Tog dui al die beskikbare bewysmiddels daarop dat die neerslag aan 'n enkele kultuurtydperk behoort. Die veelvormigheid van die implemente is ongeëwenaard in die Unie en ons kennis van die steentydperk sal baie verryk word sodra dit moontlik is om hierdie neerslag aan 'n spesifieke periode in die Ou Steentydperk toe te wys.

Selfs in die geval van 'n enkele implementtipe, soos die handpik, is daar geen eenvormigheid in die patroon nie. Handpikke wissel in lengte van 9½ duim tot minder as drie duim. Hul fatsoen wissel van die swaar Stellenbosch-IV-tipe tot netjiesafgewerkte miniature wat 'n Fauresmith-verwantskap toon. Elke intermediêre vorm is verteenwoordig. Sommige het 'n hoë rug, andere weer is hart- en ovaalvormig. Laasgenoemde smelt geleidelik met die ovaalvormige skrapers saam, waarvan daar baie is. Hierdie skrapers het oënskynlik die plek van die handbyl ingeneem wat min op hierdie terrein voorkom. Die paar wat gevind is, toon dieselfde variasie in tipe as handbyle. In sommige van hulle is die skerp sny- of skraapkant deur sorgvuldige afsplintering gevorm in plaas van die gebruiklike tegniek om een groot skilfer af te slaan. 'n Belangwekkende intermediêre vorm is 'n implement wat soos 'n handpik gevorm is, maar waar 'n beitelagtige kant die punt vervang.

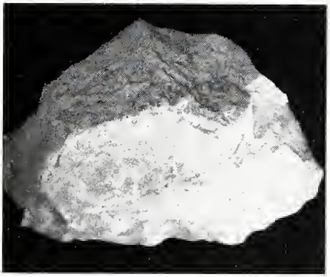
Beitels en ander implemente met 'n kort, reguit skraap- of snykant is ook algemeen onder die kleiner tipe implemente wat die koms van die Middel-steentydperk aankondig. Onder hierdie kleiner implemente is daar punte wat amper identies is met die punte van die latere Pietersburg-kultuur. Die versoeking is groot om ander punte as pylpunte te beskou maar moontlik is hulle as skrapers gebruik. In die versameling is daar bore, end- en syskrapers en lemme. Die lemme is ongelukkig egter net in die vorm van stukkies behoue gebly. Tot dusver is niks gevind wat daarop dui dat hierdie implemente met die Middel-steentydperkvoorkoms 'n latere byvoeging is nie en dit wil dus voorkom dat die verandering en verskeidenheid van implementtipes veel vroeër begin het as wat tot dusver as waarskynlik aanvaar is.



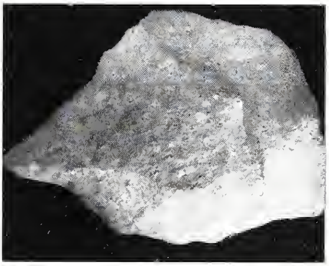
A circular chopper.
'n Sirkelvormige kapper.



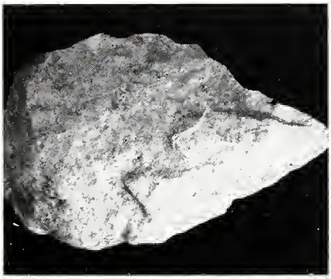
A chopper made of a slab.
'n Kapper wat van 'n plat klip gemaak is.



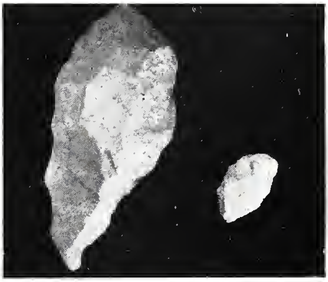
A Heavy side chopper which is typical of the Magaliesberg area.
'n Swaar sy-kapper wat kenmerkend van die Magaliesberg-gebied is.



A heavy pick, roughly flaked into shape.
'n Swaar pik, net rof afgewerk.



A handaxe of Stellenbosch—V design.
'n Stellenbosch—V-tipe handpik.



The longest and the shortest handaxe found at the Wonderboom site.
Die langste en die kortste handpik wat in die Wonderboom-afsetting gevind is.

Ru-afgewerkte pikke en kappers is van die swaarste implemente wat tot dusver op die terrein gevind is. Die pikke is min of meer driehoekig in fatsoen met die dik ent selfs tot vier duim dik. Die skors wat gedeeltelik onbewerk is, verhoog hul lompe voorkoms. Die kappers sluit in 'n tipiese Magaliesbergtipe wat eenkant skerpsnydend is terwyl dit aan die teenoorgestelde of die vashoukant dik en groot vertoon, net asof dit baie breër as lank is. Hierdie „ kantkappers " is gewoonlik sorgvuldig gemaak. 'n Ander tipe is, afgesien van 'n plat stuk wat daar gelaat is om 'n beter vashouplek te verskaf, amper rond. 'n Derde tipe is ietwat lank met 'n afgeronde werkkant onder. Hierdie werkkant is ru afgewerk en gewoonlik toon dit 'n duidelike sigsaglyn. Die handvatsel is soms amper vierhoekig met die oorspronklike oppervlakte as die een kant. Hierdie implement verander in 'n eienaardige tipe kapper wat uit plat klip gemaak is. Hierdie kappers is plat en die skors amper onaangeroerd gelaat, maar die kante is amper loodreg afgewerk.

Die finale bevinding moet wag totdat die materiaal wat te Wonderboom gevind is, sorgvuldig ontleed is. Sekere eienskappe daarvan laat dit egter waarskynlik lyk dat die Wonderboom-terrein van unieke belang in die steentydkulture van Afrika word.

(REDAKSIENOTA.—Hierdie artikel is opgestel deur dr. Hanisch wat die Wonderboom-terrein in 1955 ontdek het, terwyl die ontdekking amptelik deur die Burgemeester van Pretoria aangekondig is toe hy die jaarkongres van die S.A. Genootskap ter Bevordering van die Wetenskap op 1 Julie 1957 geopen het.)

Chisels and other tools with a short, straight scraping or cutting edge are also common among the many smaller-type implements which foreshadow the coming of the Middle Stone Age. Among these small tools are points which are nearly identical with the points of the later Pietersburg culture. Other points look temptingly like arrowheads, but have probably been used as scrapers. Among this assemblage are drills, end and side scrapers and blades, the latter unfortunately only being preserved in fragments. No evidence suggesting that these tools of Middle Stone Age appearance are a late admixture has yet been discovered and it seems, therefore, likely that the diversification of tool types began at a considerably earlier date than was hitherto thought likely.

Among the heaviest implements which the site has yielded are crude picks and choppers. The picks are roughly triangular in shape, with the butt end up to four inches thick. The cortex partially left untouched adds to their clumsy appearance.

The choppers include the typical Magaliesberg type which has a sharp edge along one side, while the opposite side where it was held is thick and bulky. It has, therefore, the appearance of being much wider than long. These " side-choppers " are usually made with some care.

Another type is nearly round except for a flat piece left standing to give a better grip. A third type is longish with a rounded working edge at the bottom. This working edge is roughly trimmed and usually shows a marked zigzag line. The handle is sometimes nearly quadrangular, one side being the original surface. This tool grades into a peculiar type of chopper made of slabs. These choppers are flat, with much of the cortex left untouched and the sides steeply trimmed.

While a final judgment must be left over until the material found at Wonderboom has been carefully analysed, certain elements contained therein make it appear likely that the Wonderboom site could assume an unusual importance among the Stone Age cultures of Africa.

(EDITORIAL NOTE.—This article was written by Dr. Hanisch who discovered the site in 1955. The discovery was officially announced by the Mayor of Pretoria when he opened the annual congress of the S.A Association for the Advancement of Science on 1st July, 1957.)

NATUURPAADJIES

deur Dr. Austin Roberts

(Ingehandig deur T. J. Steyn.)

NATUURPAADJIES word vir opvoedkundige doeleindes aangelê. Menige stedeling bestee graag sy ledige uurtjies buite in die natuur waar hy, weg van die geraas en gehaas en die rook, te midde van die vredige rustigheid van 'n natuurlike omgewing en die vars en verfrissende lug, die bestaanstryd wat so onafskeidbaar aan die lewe in dorpe verbonde skyn te wees, kan vergeet.

Aangesien die vooruitgang van die beskawing op die opdoen van kennis gebaseer is, is natuurpaadjies in talle beskaafde lande aangelê om 'n geordende kennis van natuurverskynsels buite die dorpe en stede te bevorder. Binne hierdie sentrums is daar museums en dieretuine wat die dors na kennis oor natuurkundige onderwerpe soos die geologie, die fauna en die flora van die omliggende landstreke probeer les; maar daardie natuurlike agtergrond en frisheid van natuurpaadjies ontbreek by hierdie stedelike inrigtings hoewel hulle self ook noodsaaklik en nuttig is.

'n Natuurpaadjie in die Wonderboom-natuurreservaat.

A nature trail in the Wonderboom Nature Reserve.

Eintlik word met natuurpaadjies beoog om natuurkundige lesse wat 'n bietjie verskil van dié wat in museums en dieretuine aangebied word, tuis te bring by die stedelinge wat tans—danksy die algemene gebruik van motorvervoer—hul ledige uurtjies buite kan deurbring. As groot getalle besoekers in enige natuuroord vryelik kan ronddwaal, sal die

NATURE TRAILS

by Dr. Austin Roberts

(*Submitted by T. J. Steyn.*)

THE idea behind the institution of Nature Trails is educational. Many city dwellers love to spend their leisure hours by getting back to Nature in visiting places in the country and away from the noise and bustle, and smoke, where, amid the peaceful calm of natural surroundings and fresh and invigorating air, they can forget the struggle for existence that seems so inseparable from life in the towns and cities.

As the soul of civilized progress is the acquisition of knowledge, Nature Trails have been developed in many civilized countries to cultivate an orderly knowledge of the features of Nature outside the towns and cities. Within these centres museums and zoological gardens endeavour to cater for the thirst for knowledge on the natural history subjects of geology, fauna and flora of the country where they are situated; but these urban institutions—while serving a decidedly essential and useful purpose—lack the natural setting and freshness of Nature Trails.

Actually, they have their basis in the fact that since the widespread use of motor transport and the ease with which urban dwellers can now spend their leisure hours in the country, they cater for such people in providing lessons in natural history of a slightly different kind from that for which museums and zoological gardens are maintained. Where visitors to given places, such as Nature Trails, become numerous, freedom to wander about would soon ruin the natural features, little would be learnt and the fauna would be so much disturbed that it would desert the area. Consequently, the laying down of definite pathways insures that all those of well-ordered mind will follow these guides *and not wander indiscriminately* everywhere.

This does not mean that everybody will be ordered to keep only to the pathways—as is done in the Kruger National Park, for the very good reason that it teems with dangerous wild animals—but are requested to do so for the common good in preservation of the natural features of the area, and at the same time learn something from the labels along the pathways. These pathways, or trails, are so laid out that they lead to interesting features and offer easy gradients in walking.

The greater the natural variety they can display, the greater the pleasure and knowledge derived by following them. Where the features of the trails are static, labels of an instructive nature are placed to draw attention to them, whether they be of geological, archaeological or botanical nature; but where the features are animate animals which cannot be seen at any time in one place, a different procedure is necessary for drawing attention to them. Thus in the case of birds, mammals and lizards these are illustrated in colour in a sheltered situation where they can be seen with ease. The keeping of caged wild animals is contrary to the idea of freedom that such Nature Trails are intended to convey; but in some Nature Trails enclosures have been erected to keep some lower vertebrate animals within sight of visitors.

natuurlike kenmerke gou vernietig word, daar sal weinig te lere wees en die diere sal soveel gesteur word dat hulle die gebied sal verlaat. Die uitlê van bepaalde natuurpaadjies verseker dat almal wat orde lief het, daardie aanwysings sal volg *en nie blindelings oral sal rondloop nie.*

Dit beteken nie dat almal soos in die geval van die Krugerwildtuin—waar die aanwesigheid van talle gevaarlike wilde diere 'n goeie rede daarvoor is—aangesê sal word om net in die paaie te bly nie, maar hulle word versoek om dit in die algemene belang te doen teneinde die natuurlike kenmerke van die gebied te behou en terselfdertyd iets van die etikette langs die paadjies te leer. Hierdie wandelpaadjies word so aangelê dat interessante plekkies met gemak te voet bereik kan word.

Hoe groter die verskeidenheid is wat so 'n paadjie aan die wandelaar ontvou, des te meer genot en kennis sal die uitstappie hom besorg. Waar daar beweginglose voorwerpe, hetsy van aardkundige, oudheidkundige of plantkundige aard, aangetref word, word die wandelaar se aandag met behulp van leersame etikette daarop gevestig, maar in die geval van lewende diere wat nie te eniger tyd op dieselfde plek te sien is nie, word dit op 'n ander manier gedoen. In die geval van voëls, soogdiere en akkedisse word byvoorbeeld van gekleurde illustrasies op beskutte plekke waar hulle tog maklik gesien kan word, gebruik gemaak. Die aanhou van wilde diere in hokke strook nie eintlik met die gedagte van vrywees wat sulke natuurpaadjies veronderstel is om te vertolk nie, maar in sommige gevalle word sekere laer werweldiere deur middel van afskortings binne die gesigsveld van besoekers gehou.

Wonderboom kan nouliks oortref word as 'n terrein vir die uitlê van natuurpaadjies. Dit bied so baie aantreklikhede in die vorm van oorvloedige flora en sigbare fauna, veral voëls. Daar is die landskap met die reusevyeboom aan die kant van 'n gelykte, dan 'n strook met 'n groot verskeidenheid van hoë bome teen die helling effens hoërop, en eindelik die steiler berghange met verspreide bome en bosse tot op die kruin van die berg.

Ander bydraes in hierdie brosjure bevat meer besonderehde oor die natuurkundige aspekte van die reservaat en ons gaan ons hier net by die natuurpaadjie self bepaal. Die uitstaande kenmerk van die gebied is natuurlik die Wonderboom self. Die paadjie begin net bokant die boom en loop in 'n westelike rigting. Dit is uitgelê met plat, onafgewerkte klippe wat vlakby verkry is. Eers loop dit deur tussen groot, skaduryke en interessante bome bestaande uit doringbome, raasblare, mispels, maroelas, vyebome, kafferbome, ens.; dan word die hellings kaler met net hier en daar groot bome en interessante korter plantegroei tussen die klippe en rotse. Eindelik bereik 'n mens die uitloper van die berg wat aan die suidekant steil van die rivier af opstyg. Hier lei 'n sypaadjie na die groot grot oor die rant. Hiervandaan kry 'n mens 'n pragtige uitsig op die Apiesrivier waar dit saam met die grootpad na die noorde en die spoorlyn deur die poort sny wat aan die oorkant skurwe en plek-plek loodregte wande vertoon.

Sodra die paadjie die bos verlaat, word die landskap noordwaarts sigbaar en die uitsig verbeter hoe hoër 'n mens die paadjie volg. Naby die rug en die grot swenk die paadjie ooswaarts terwyl dit al kronkelende styg tot bo-op die berg waar die ou fort is. Hiervandaan is die uitsig oor die hele omliggende landskap manjifiek.

Wonderboom could hardly be improved upon as a site for a Nature Trail. It offers so many attractions in the abundance of its flora and visible fauna, in its birds in particular, in its terrain, the giant fig tree situated on the edge of a flat area, immediately above this a fringe of large trees of considerable variety, and above this the slopes of the mountain rising steeply and with scattered trees and bushes to the summit.

More details of the natural features of the reserve will be dealt with in separate articles in this brochure, and here we will concern ourselves only with the trail itself. The finest feature of the area is naturally the Wonderboom itself; just above this the trail starts and leads in a westerly direction. It is paved with flat, undressed stones taken from the immediate vicinity of the Trail. First, it leads through the larger trees, consisting of acacias, combretums, medlars, marulas, figs, erythrinas, etc., offering plenty of shade and interest; then through more open ground of the slopes of the mountain, with large trees here and there and shorter interesting vegetation amongst the stones and boulders, eventually reaching the spur of the mountain which rises from the river precipitously on the southern side. Here a branch of the pathway leads over the ridge to the large cave. From here a fine view is to be had of the Apies River where it cuts through the mountain range, the Great North Road and the railway line running parallel with it, and above them on the opposite side the rugged and in places precipitous side of the poort.

High above the hustle and bustle of Wonderboom Poort.

Hoog bokant die geraas en gehaas van Wonderboompoort.

As soon as the Trail emerges from the bush, views of the country to the North are to be had, and they improve the higher one is up on the Trail. Near the ridge and cave the Trail turns eastwards, still ascending and winding about until the summit of the mountain and the old fort perched there are reached. From here a magnificent view is to be had of the whole of the surrounding country.

Omtrent twintig myl weswaarts langs die Magaliesberg blink die waters van die Hartbeespoortdam; na die suidweste verberg die Daspoortreeks byna die hele landskap; en hier vlak onderkant lê die stedelike gebiede van die Mootvallei.

Suid van Wonderboom word die Daspoortreeks laer en oor sy kruine heen kan 'n mens die stad Pretoria sien, die skoorstene van Yskor, die rante daaragter en, tussen hulle deur, net 'n stukkie van Voortrekkerhoogte, maar die hele Voortrekkermonument staan duidelik uit. 'n Bietjie ten ooste van die sentrale stad verrys Meintjieskop waaragter die Uniegebou net-net sigbaar is en verder ooswaarts tref die oog 'n aantal wonings, veral „Libertas" (die Eerste Minister se woning) en die Goewerneurswoning.

Net daaronder, aan die noordekant, al met die oostelike Mootvallei langs, strek stedelike gebiede tot anderkant Eerste Fabrieke terwyl 'n mens verder ooswaarts langs die Magaliesberg 'n vergesig op plase en rante-golwinge kry, met die Premier-diamantmyn se skoorstene ongeveer 25 myl in die verte.

Benoorde die Magaliesberg lê daar op die voorgrond die Wonderboom-vliegveld waarvan die geboue tans 'n dorpie uitmaak. Ten weste van die vliegveld strek die plasies van groenteboere langs die vrugbare Apiesriviervallei; verder wes, anderkant die pad en die spoorlyn, lê die dorp Pretoria-Noord met die woongebied en geboue van die beroemde Veeartsenynavorsings-laboratoriums van Onderstepoort daaragter. Verder noord lê die Bon Accord-dam tussen die losstaande norietrante wat as die „Pyramids" bekend staan. Daaragter strek oop vlaktes en nog verder weg doem die bosveld donker op, met die platinadraende Waterbergreeks in die bloue verskiet.

Orals langs hierdie natuurpaadjie vertoef 'n mens natuurlik by wyle om te rus en kan dan nie anders as om die landskapsglorie wat daar aan die oog ontvou, in te drink nie. Die uitsig van sulke plekke af, net soos ander Suid-Afrikaanse natuurtonele, laat 'n mens die uitgestrektheid van ons ruimtes en die oneindigheid van die natuur besef. Daarnaas mag 'n mens klein en nietig voel, maar 'n vergesig vanaf 'n bergtop verskaf tog altyd besieling en verfrissing aan diegene wat wil ontvlug aan die veelvuldige probleme wat ons moderne lewenswyse meebring.

So vind 'n mens dan in die Wonderboom-reservaat nie alleen 'n wonderlike geleentheid om die natuur in sy ongeskonde toestand te bestudeer nie, maar ook veel ter besieling uit die bergklim en die manjifieke landskappe wat hulle daar aan die oog ontvou.

Looking west along the Magaliesberg, we see the glistening waters of the Hartbeespoort Dam (about twenty miles away), with the Daspoort range of mountains almost shutting off the country to the south-west, and in the foreground the townships of the Moot Valley.

The Daspoort range becomes lower to the south of Wonderboom, and over it we have a view of the city of Pretoria, the smoke-stacks of Iscor, the mountains immediately behind them giving only a glimpse of Voortrekkerhoogte, but a clear view of the Voortrekker Monument. A little to the East of the main part of the city rises Meintjes Kop, all but hiding a view of Union Buildings, to the east of which stand out some residences, notably "Libertas" (the Prime Minister's residence) and Government House.

Below these on the north lies the eastern part of the Moot Valley with townships along its whole length, out towards Eerste Fabrieke and beyond. Looking eastwards, along the Magaliesberg, a wide vista of farms and rolling hilly country is seen, with the smoke-stacks of Premier Diamond Mine in the distance (about 25 miles away).

North of the Magaliesberg we have laid out before us in the foreground the Wonderboom Aerodrome with the buildings now forming a a township, west of which the fertile valley of the Apies River is occupied by market gardening plots, and on the western side, west of the road and railway line, the township of Pretoria North, to the north of which lies the settlement and buildings of the famous Onderstepoort Veterinary Research Laboratories. This valley is marked off on the North by the isolated norite hills known as the "Pyramids", and just to the north of Onderstepoort is the Bon Accord Dam lying between these hills. Beyond lie open plains, and beyond them a great expanse of thornveld lies darkly in sight, with the platinum-yielding mountains of Waterberg beyond in the blue distance.

Anywhere along this Nature Trail one naturally pauses for a rest at times, and then cannot help drinking in the glorious landscapes that present themselves. Contemplation from such sites brings home—like so much of our South African scenery—the great expanses of our veld and the infinity of Nature. We may feel puny beside it all, but views from mountain tops are ever inspiring and stimulating, and can be recommended to anyone desiring to find relief from the many problems with which our modern mode of life besets us.

We have thus in the Wonderboom Reserve not only a wonderful field for the study of natural history in its proper setting, but may also find much to inspire us in the mountain climb and magnificent landscapes presented to our view.

ENKELE PLANTKUNDIGE ASPEKTE VAN DIE WONDERBOOM-NATUURRESERVAAT

deur **D. G. Collett**

NADER mens die Wonderboom vanaf die teerpad aan die voet van die noordelike hange van die Magaliesberg, dan loop mens by die hekkie onder die wye takke van 'n maroelaboom (*Sclerocarya caffra*) deur. Die grootte van hierdie boom, waarna later meer volledig verwys word, is opvallend daar dit in die doringstruikgebied op die sagte grond van die gelykte reg noord van die Wonderboom voorkom.

Hierdie doringruigte bestaan oorheersend uit die reukpeul, *Acacia arabica* var. *kraussiana.* Die peule van hierdie doringboom is afhangend, 4-6 duim lank, swart en tussen die sade ingesnoer wanneer hulle ryp is. Die sambreelvormige bome, 12-15 voet hoog, maak 'n mooi vertoning in die lente wanneer hulle vol vrugte is. Die peule het 'n aangename geur, soos die volksnaam aandui, en lewer 'n waardevolle looistof terwyl die blomme vir bye aantreklik is.

Die sekelbos, *Dichrostachys glomerata,* is sub-dominant of mees algemeen ná die reukpeul. Hierdie boom lyk baie na 'n Acacia, maar verskil van die doringbome daarin dat sy „ dorings " bestaan uit verkorte takkies wat dikwels nog blaarlittekens vertoon. Die sogenaamde dorings is dus meer houtagtig en sterker as in doringboomsoorte waar die dorings boonop gewysigde steunblare of slegs stekels is, nie gewysigde takkies nie. Ook die bloeiwyse van die sekelbos is kenmerkend. In die afhangende aarvormige bloeiwyse is die boonste blomme steriel en opvallend ligroos van kleur terwyl die onderstes tweeslagtig en diepgeel is. Die peule word in digte bondels gedra en is min of meer S-vormig gekrul in die jong stadium maar word later meer sekelvormig, vandaar die naam „ sekelbos ". Die hout van die sekelbos word as baie duursaam en bestand teen termiete en houtwurms beskou. Dit is ook bestand teen veldbrande en volgens E. E. Galpin is dit die beste hout in Transvaal vir draadpale aangesien dit feitlik onverganklik en selfs beter as „ nieshout " is.

Ander opvallende bome is die twee kareesoorte, *Rhus lancea* en *R. amerina* (laasgenoemde beter bekend onder die foutiewe naam *R. guenzii*). Eersgenoemde is die welbekende kareeboom wat wydverspreid in Transvaal en veral volop om Pretoria voorkom. Dit het lang lansetvormige en gaafrandige blaartjies terwyl *Rhus amerina,* die bergkaree, stomp getande blaarrande het.

In so 'n bosgemeenskap vind mens ook dikwels die pendoring, *Gymnosporia buxifolia,* 'n soort wat dwarsdeur die land in verskillende omgewings, van bosrande tot klipkoppies, aangetref word. Dit verbaas dus nie dat dit, veral wat doringagtigheid betref, baie varieer nie. Dit is 'n sterkvertakte struik van ongeveer 8 voet met groen of ietwat blougroen omgekeerd-eiervormige blare wat alleenstaande of, meer dikwels, in bondels gerangskik mag wees. Die bloeiwyse bestaande uit klein roomkleurige blommetjies verander die doringagtige plant van 'n afskrikwekkende voorwerp na 'n sierstruik.

SOME BOTANICAL FEATURES OF THE WONDERBOOM NATURE RESERVE

by D. G. Collett

ON approaching the Wonderboom itself from the tarred road at the foot of the northern slopes of the Magaliesberg one passes under a large " morula " tree, *Sclerocarya caffra*, whose branches overhang the gate. This tree, referred to more fully later in this article, is conspicuous for its size in the thorn scrub area which lies on the flatter, less rocky ground just to the north of the Wonderboom.

This thorn scrub is dominated by *Acacia arabica* var. *kraussiana*, the " reukpeul ". The pods are pendulous, 4-6 inches long, black when ripe and constricted between the seeds; and the round-topped trees, 12-15 feet high, make an attractive sight when in full fruit as they are in the autumn. The pods are fragrant, as the common name suggests, and they yield a valuable tannin, while the flowers are attractive to bees.

Sub-dominant to the " reukpeul " is the " sekelbos ", *Dichrostachys glomerata*. This tree looks very like an Acacia species from which genus it is distinguishable by its spines being abbreviated branches often bearing the scars of fallen leaves. The spines are thus more woody and robust than in Acacia species where they are frequently modified stipules or just prickles. The inflorescence of the " sekelbos " is characteristic too, spicate and pendulous. In this drooping position the upper flowers, which are sterile, are a showy pink while the lower bisexual flowers are yellow. The pods occur in dense clusters, curled at first into roughly S-shaped forms which become sickle-shaped as they mature, hence the common name. The wood of the " sekelbos " is reputed to be very durable, termite and borer proof. It is very resistant to grass fires and according to E. E. Galpin is the best wood in the Transvaal for fencing posts, being practically imperishable and superior even to " sneezewood ".

Other conspicuous trees are two species of *Rhus*, *R. lancea* and *R. amerina* (the latter better known, though wrongly, as *R. gueinzii*). The former is the " Kareeboom ", which is widely spread in the Transvaal and is especially common round Pretoria. It has long, lanceolate, entire leaflets while *Rhus amerina*, the " Mountain Karee ", has a bluntly toothed leaf margin.

In such a bush community one commonly finds the " pendoring ", *Gymnosporia buxifolia*, which species occurs throughout the country in many different types of environment from forest margins to rocky koppies, so it is not surprising to find it very variable, especially in the degree of its spinescence. It is a much branched shrub about 8 feet high with green or somewhat glaucous-green, obovate leaves occurring singly or more frequently in fascicles. The inflorescences of small, creamy-white flowers convert the thorny plant from a forbidding looking specimen to an ornamental shrub.

Rather like *Gymnosporia buxifolia* in appearance is *Ehretia rigida*, the " deurmekaarbos ", which is another of the components of bush groups

Die deurmekaarbos, *Ehretia rigida,* wat ietwat na *Gymnosporia buxifolia* lyk, is nog een van die lede van bosgroepe om Pretoria. Dit is 'n lae sterkvertakte boompie waarvan die blare dikwels in klompe voorkom, maar dit kan geredelik van die pendoring onderskei word as gevolg van die groter en losser bloeiwyse met ligpers blomme.

Pavetta assimilis is volop in die struikgewas en onder teen die noordelike hange van Magaliesberg. Dit is wydverspreid in Transvaal en strek tot in Natal. Hierdie soort dra bosse wit blomme en later klein, persagtige swart bessies.

Nader aan Apiesrivier staan 'n tamaai boomdruif, *Lannea discolor,* wat met die eerste oogopslag met die maroela, 'n ander lid van dieselfde familie (*Anacardiaceae*), verwar kan word. Die vrugte van *Lannea discolor* is egter baie klein, skaars 'n halfduim lank en dra 4 kenmerkende puntjies, die oorblyfsels van die style. Daarenteen lyk die vrugte van die maroela soos groen okkerneute. Hulle val af net voor hulle ryp word en is geskik vir die kook van goeie konfyt en heerlike jellie. In sekere dele van die land maak die naturelle 'n sterk brousel daarvan.

Aangesien die hout van die maroela sag is en maklik om uit te hol, is dit geskik vir die maak van suipbakke vir vee. Dit is ook interessant dat 'n treksel van die bas as middel teen malaria aangewend word. Skynbaar is die uitwerking soms soos dié van kina, maar 'n deeglike ondersoek het getoon dat dit nie betroubaar is nie.

Mispel. *Vangueria infausta.* Wild Medlar.

Nog twee bome wat in hierdie struikgewas voorkom en albei aan die familie *Rubiaceae* behoort, is *Tapiphyllum parviflorum* en *Vangueria infausta.* Eersgenoemde, die bergmispel, word slegs toevallig hier aan-

near Pretoria. It is a small spreading tree whose leaves are frequently clustered but it is readily distinguished from the " pendoring " by its larger and less densely clustered mauve flowers.

Pavetta assimilis is quite common in the scrub and on the lower north slopes of the Magaliesberg. It is widespread in the Transvaal and extends into Natal. This species bears clusters of white flowers and later small purplish-black berries.

Nearer the Apies River is a huge specimen of *Lannea discolor,* the " boomdruif ", which at first sight might be confused with the " morula " and it may be noted that both trees belong to the same family, the *Anacardiaceae.* The fruits of *Lannea discolor* are, however, quite small, barely half an inch long and characteristically tipped with the remains of the 4 styles. The " morula " on the other hand, has fruits looking like green walnuts, which fall to the ground just before ripening. They make good jam and a delicious jelly, and natives in certain parts of the country use them to make an intoxicating drink.

The wood of the " morula " is useful for cattle troughs because it is soft and easy to hollow out. It is interesting to note, too, that a decoction of the bark has been used against malaria in which respect it sometimes appears to act like quinine, but extensive investigation has shown that it is not reliable.

Ochna pulchra.

Barnardgif. ,, Lekkerbreek"

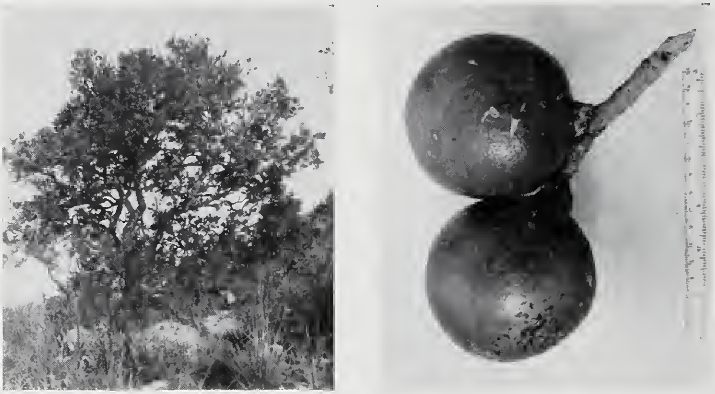
Ochna pretoriensis.

,, Lekkerbreek ".

Other trees encountered in the scrub include two members of the family *Rubiaceae, Tapiphyllum parvifolium* and *Vangueria infausta.* The former, known as the " bergmispel ", is only occasional, having drifted down from its favourite habitat on the northern slopes of the mountain. It is a small, straggly, many-stemmed tree, very different from *Ochna pulchra,* the ,, lekkerbreek ", which also comes down to the plains from the northern slopes of koppies as a straight stemmed tree up to about 20 feet. Its leaves are entire and elliptic but it is most easily recognised by its smooth and usually white or grey trunk which becomes conspicuous

getref aangesien sy eintlike groeiplek op die noordelike hang van die berg is en nie op die vlakte nie. Dit is 'n klein, yl boompie met baie stamme en is dus baie verskillend van die lekkerbreek, *Ochna pulchra*, wat eintlik ook op die noordelike hange van koppies tuishoort maar soms op die vlaktes as bome met enkele stamme tot 20 voet hoog groei. Die blare is gaafrandig en ellipties maar die boom word die maklikste uitgeken aan sy gladde en gewoonlik wit of grys stam wat in die veld opvallend word wanneer die buitenste bas afdop. Die geelgroen bloeiwyse is reeds mooi maar wanneer die kelkblare laat in Oktober rooi verkleur, word die plant éérs opvallend. Die blomme het 'n sterk geur en lewer, volgens bewering, goeie nektar. Dit is 'n tipies Transvaalse soort maar strek tot in Noord-Betsjoeanaland en Rhodesië. *Vangueria infausta*, die mispel, is 'n taamlik onaantreklike boom, tot 10 voet hoog. Die blare het 'n gelerige haarbedekking op albei vlakke en is dikwels vol galle. Die half-bolvormige vrug is eetbaar en het 'n taamlike suur smaak.

Die blou-gwarrie, *Euclea lanceolata*, kom in verskillende vorme tussen die struikgewasse voor. Tussen die Wonderboom en die ingangshek is dit 'n bos terwyl dit 'n bietjie laer-af skaars herkenbaar is as dieselfde soort met 'n hoë reguit stam.



Strychnos pungens.

Klapper. Kaffir Orange.

Nader aan die Apiesrivier staan 'n paar eksemplare van die klapper, *Strychnos pungens*, wat baie na 'n ongesnoeide lemoenboom lyk. Die soort word herken aan sy leeragtige blare met stekelrige punte en aan die groot vrugte met houtagtige skille. Hierdie vrugte is eers donkergroen maar word by rypwording geel. Die vrugmoes om die sade is eetbaar maar onsmaaklik. Die soort word algemeen op die klipkoppies van Pretoria en die omliggende streke aangetref en kom in Rhodesië ook voor.

Die wilde-appelkoos, *Dovyalis tristis*, lyk baie soos die Kei-appel, *Dovyalis caffra*, maar het veel kleiner vrugte. Die vrugte is eetbaar en geskik vir jellie, maar die verhouding van die sade maak hulle ongeskik vir konfyt. Voorbeelde kom verspreid tussen die struikgewas en onder op die berghange voor, maar dit is hoofsaaklik 'n Oos-Kaaplandse soort, 8-10 voet hoog en met stekels op die jong takke.

in the veld when the outer bark peels off. Its greenish-yellow inflorescences are showy but when the sepals turn red in late October, the species becomes more conspicuous still. The flowers are very fragrant and are reported to produce a good nectar. It is a typically Transvaal species but extends into Northern Bechuanaland and Rhodesia. *Vangueria infausta,* the " mispel " or " wild medlar ", is a rather unattractive tree about 10 feet high. The leaves have a yellowish felt on both surfaces and frequently numerous galls. The sub-globose fruit is edible with a rather acid flavour.

Euclea lanceolata, the " blou-gwarrie ", occurs among the scrub in various forms. Between the Wonderboom and the entrance gate it is a bushy tree whereas a little lower down it is hardly recognisable as the same species with its tall straight stem.

Nearer the Apies River are a few specimens of *Strychnos pungens.* the " Kaffir Orange ", rather like an untrimmed orange tree in appearance. The species is recognised by its leathery, spine-tipped leaves and by the large fruit with woody rind, 4 inches in diameter, dark green at first but turning yellow when ripe. The pulp surrounding the seeds is edible but is not tasty. The species is common on the rocky koppies of Pretoria and the surrounding districts, and is recorded also from Rhodesia.

Dovyalis tristis, the " wild apricot ", is very like the " Kei Apple ", *Dovyalis caffra,* in appearance, but has much smaller fruits. These are edible and can be used for jelly but the seeds form too large a proportion for jam. Scattered specimens are found in the scrub and on the lower slopes but it is a predominantly eastern Cape species, generally 8-10 feet high with spines on the young branches.

Most people will recognise the " Camdeboo Stinkwood " or " witstinkhoutboom ", *Celtis africana,* an indigenous tree popular in cultivation in Pretoria because of its tall habit and symmetrical crown. The stems and branches have a smooth whitish or light grey bark and the ovate leaves are yellowish green in spring, becoming dark green in summer. The species occurs from the eastern coastal districts to Bechuanaland, mostly favouring koppies and rocky outcrops, but occasionally occurring along valleys.

Ziziphus mucronata, the " blinkblaar-wag-'n-bietjie ", which bears brick-red berries, varies greatly from shrubby specimens 10 feet high to large trees of nearly 40 feet. As the common name implies, the species is spinescent, the spines frequently occurring opposite each other on the branches. The degree of spinescence, however, varies and the less thorny forms constitute a valuable stock food. It is reported to be a good nectar plant for bees, which also frequent the dense white inflorescences of *Dombeya rotundifolia,* the " drolpeer " or " dikbas ". The flowers of this species appear in September and October before the leaves, which are rotund and of a rather leathery texture. The species is widespread in the Union and extends to Rhodesia. It is variable in size, ranging from a 6-foot shrub to a tree of 25 feet.

Acacia tortilis, the " haak-en-steek " or " umbrella thorn ", is a minor component of this thorn scrub. It is most easily distinguished by having both straight thorns and recurved prickles, hence its common name. The pods are cork-screw shaped.

A species of *Royena, R. guerkii,* is occasional on both the north and south slopes.

Meeste mense sal die kamdebo- of witstinkhout, *Celtis africana,* herken as een van die gewilde inheemse bome wat vanweë sy hoë groeivorm en simmetriese kroon algemeen in Pretoria aangeplant word. Die stamme en takke het 'n gladde wit of liggrys bas en die eiervormige blare is gelerig-groen in die lente en donkergroen in die somer. Die soort kom vanaf die oostelike kusdistrikte tot in Betsjoeanaland voor en verkies koppies en klipperige dagsome, maar groei soms ook in valleie.

Die blinkblaar-wag-'n-bietjie, *Ziziphus mucronata,* wat baksteenrooi bessies dra, varieer baie vanaf struikagtige vorme van 10 voet tot hoë bome van byna 40 voet. Soos die volksnaam aandui, is die soort doringagtig met die dorings dikwels teenoorstaande op die takke. Die graad van doringagtigheid wissel egter en dié met die minste dorings vorm 'n waardevolle veevoer. Dit word beweer dat dit 'n goeie nektarplant is vir bye wat die digte wit bloeiwyses van die dikbas of drolpeer, *Dombeya rotundifolia,* ook graag besoek. Die blomme van hierdie soort verskyn in September en Oktober, vóór die ronde en leeragtige blare. Die soort is wydverspreid in die Unie en strek tot in Rhodesië. Dit wissel in grootte vanaf 'n struik van 6 voet tot 'n boom van 25 voet.

Die haak-en-steek, *Acacia tortilis,* is een van die skaars soorte in hierdie struikgewas. Dit kan baie maklik herken word aangesien dit teruggekromde sowel as reguit dorings dra, soos die volksnaam aandui. Die peule is kurktrekkervormig.

'n *Royena*-soort, *R. guerkii,* word hier-en-daar op beide noordelike en suidelike hange aangetref.

Van die struike is die rosyntjiebos, *Grewia flava,* en die vals-brandnetel, *Pouzolzia hypoleuca,* mees algemeen. Laasgenoemde is 'n sagte struik van 4-6 voet en kan maklik uitgeken word aan die spierwit onderste vlakke van die hand-arige blare met drie hoofare elk. Hierdie plant behoort aan die brandnetelfamilie (*Urticaceae*) maar het gelukkig self geen brandhare nie.

Die rosyntjiebos is 'n sterkvertakte struik, 4-6 voet hoog. Die geel of oranje blomme is enkel en die elliptiese blare van onder bedek met 'n groenerige wit haarbekleding. Die jong lote en bas is veselagtig en word vir die maak van mandjies gebruik. Betsjoeanas maak bier van die eetbare steenvruggies. Vee en wild vreet die blare, veral in die winter wanneer dit 'n waardevolle veevoer is. Die soort is wydverspreid maar mees algemeen vanaf Pretoria weswaarts tot in Betsjoeanaland.

Jong plantjies van die doppruim, *Pappea capensis* var. *radlkoferi,* word in die skaduwee van gevestigde bome aangetref. Hul elliptiese blare is duidelik saagagtig hoewel dié van volwasse bome, waarvan daar 'n voorbeeld van 30 voet of hoër net noord van die ingangshek staan, slegs effens gekartel is.

Die houtagtige klimplant, *Cryptolepis transvaalensis,* kom hier en daar in die struikgewas voor, waar hy sy welbekende wurggreep toepas. Die peulplant, *Abrus laevigatus,* is 'n baie fyner en sierliker klimmer met ligroom of ligpers blomme en is taamlik wydverspreid in Suid-Afrika. „Traveller's Joy", *Clematis brachiata,* kom meer volop op die berg self voor.

In die dammetjie is die biesie, *Cyperus papyrus,* in die middel oorheersend en die papkuil, *Typha australis,* aan die kante.

Of the shrubs, *Grewia flava* and *Pouzolzia hypoleuca* are the most common. The latter is a soft-wooded shrub of 4-6 feet, readily recognised by the snow-white undersurface of the leaf with three primary veins arising from the base. This plant belongs to the Nettle Family (*Urticaceae*), but fortunately for visitors is itself not armed with stinging hairs.

Grewia flava, the " rosyntjiebos ", is a divaricately branched shrub 4-6 feet high. The flowers are solitary, yellow or orange, the leaves elliptic and covered beneath with a greenish-white felt. The young shoots and bark are fibrous and used for basket making. Bechuanas use the small stony fruits, which are edible, for making an intoxicating drink. Stock and game browse on the foliage, especially in winter when the shrub becomes a valuable stock food. The species has a wide distribution but is most common from Pretoria westwards to Bechuanaland.

Small plants of *Pappea capensis* var. *radlkoferi*, the " doppruim ", occur in the shade of established trees. These young forms have very serrated leaves though the adult specimens, of which there is one 30 feet or more high just north of the entrance gate, have only slightly crenulate elliptic leaves.

The woody climber, *Cryptolepis transvaalensis*, occurs occasionally in the scrub in its usual role of a powerful strangler. A more slender and graceful climber is the leguminous one, *Abrus laevigatus*, which has creamy purple flowers and is fairly widespread throughout the country. *Clematis brachiata*, the " Traveller's Joy ", occurs more abundantly on the mountain itself.

In the pond the sedge, *Cyperus papyrus*, is the dominating feature in the centre, with the bulrush, *Typha australis*, at the edge.

The Wonderboom itself is on a line running roughly east-west demarcating the thorn scrub from taller bushveld forms at the foot of the mountain. On the lower north slopes no species is conspicuously dominant. Specimens of *Acacia nilotica* and *Dichrostachys glomerata* intrude from the thorn scrub but it is noticeable that these are taller in adaptation to their environment. An occasional specimen of *Acacia robusta*, " oudoring ", is found, 25-40 feet high and recognised by its pendulous leathery pods, 3 to 4 inches long and over ½ inch broad, and by its broad leaf pinnae. In spring it is the first Acacia species to flower in the Pretoria District. *Gymnosporia buxifolia* also occurs, about 15 feet high and with long spines.

The " morula " trees and specimens of *Ficus pretoriae* and *Ficus ingens* are the largest of the tall bushveld forms. *Ficus pretoriae* is the evergreen species to which the Wonderboom itself belongs and has a distribution as far north as Somaliland.

The majority of the trees on the lower slopes, like *Sclerocarya caffra* and *Ficus ingens*, are deciduous. This is one of the characters which distinguish the latter species from *Ficus pretoriae* which it closely resembles in size and appearance in its tree form. It also has larger figs than the Wonderboom. Both *Ficus ingens* and *F. soldanella* are rock splitters, sending their roots into crevices on the sheer rock faces; the latter also occurs as a small tree below krantzes. *F. soldanella* has suborbicular leaves whereas *F. pretoriae* and *F. ingens* have more elliptic leaves.

Die Wonderboom self staan op 'n denkbeeldige lyn wat naastenby oos-wes loop en die doringstruikgewas in die noordelike gedeelte skei van die hoër bosveldbome aan die voet van die berg, ten suide van die lyn. Tussen laasgenoemde bome is daar geen duidelik oorheersende soorte nie. Eksemplare van *Acacia nilotica* en *Dichrostachys glomerata* uit die doringstruikgebied dring hier in, maar is groter, deur aanpassing by die omstandighede. Enkele 25-40 voet hoë voorbeelde van die oudoring, *Acacia robusta*, word aangetref en aan sy afhangende leeragtige peule wat 3 tot 4 duim lank en meer as 'n halfduim breed is, uitgeken, asook aan sy blaartjies wat vir 'n doringboom baie breed is. In die somer is dit die eerste doringboomsoort wat in die Pretoriase distrik blom. *Gymnosporia buxifolia* word hier omtrent 15 voet hoog en dra lang dorings.

Die maroelabome en eksemplare van die wildevye *Ficus pretoriae* en *Ficus ingens* is die grootste van die hoë bosveldvorme. *Ficus pretoriae* is die immergroen soort waaraan die Wonderboom self behoort en kom noordwaarts tot in Somaliland voor.

Laag teen die hange is die meeste bome, bv. *Sclerocarya caffra* en *Ficus ingens*, bladwisselend. Hierdie kenmerk onderskei die boomvorm van *Ficus ingens* van *Ficus pretoriae*, waarmee dit andersins baie ooreenstem. *F. ingens* het ook groter vye as die Wonderboom. Dit kom soms as 'n boompie onder kranse voor of, soos *Ficus soldanella*, as 'n struik op rotswande. Laasgenoemde is 'n rotsplant wat sy wortels diep in die splete instuur. Dit het byna ronde blare terwyl die ander twee vyesoorte meer elliptiese blare het.

Die kafferboom, *Erythrina lysistemon*, is 'n groot boom van omtrent 40 voet met swart, ingesnoerde peule en rooi sade waarvan die naturelle soms halssnoere maak.

Celtis africana en *Combretum gueinzii* is bome van 30 voet of hoër en kom saam met *Rhus lancea* en *Rhus amerina* onder teen die hange voor. Lasgenoemde twee soorte word nie hoër teen die berg aangetref nie. *Ziziphus mucronata* en *Combretum zeyheri*, die raasblaar, word af-en-toe aangetref. Die Combretum-soorte het gevleuelde vrugte met 4 vlerke. Dié van *Combretum zeyheri* is die grootste van die Suid-Afrikaanse soorte en is 2 tot 3 duim breed en 1½ tot 2 duim lank. Die vrugte van *Combretum gueinzii* is baie kleiner, ligbruin van kleur en tot 'n duim lank. Die blare het 'n fluweelagtige haarbekleding en is teenoorstaande sodat klein eksemplare maklik met *Vangueria infausta* verwar kan word wanneer blomme en vrugte afwesig is. Laasgenoemde kan egter maklik herken word aan die steunblaartjies in die oksels van die blare, 'n tipiese kenmerk van die *Rubiaceae* of katjiepiering-familie, en ook aan die galle of swart swamme wat dikwels op die blare voorkom. Dit is interessant dat die vrugliggame van hierdie swam nog nie gevind is nie en dit derhalwe nog nie uitgeken is nie.

Onder teen die hange is *Vangueria infausta* taamlik volop terwyl *Pavetta assimilis*, *Ehretia rigida* en *Dombeya rotundifolia* skaarser is. *Clerodendron glabrum* kom hier voor as 'n klein, sterkvertakte boompie waarvan die blare dikwels in kranse van drie is. Die digte bosse wit blomme lok bye aan. Terloops, die Soeloes gebruik 'n treksel van die wortels teen slangbyt. Die rosyntjiebos, wilde-appelkoos en die blougwarrie strek tot in hierdie gebied.

Erythrina lysistemon, the " kaffirboom ", is a tall tree of about 40 feet with black, constricted pods and red seeds which the natives sometimes use for making necklaces.

Croton gratissimus.

Celtis africana and *Combretum gueinzii,* trees up to 30 feet or more, occur on the lower slopes with *Rhus lancea* and *Rhus amerina.* The last two species are not found higher up the mountain. *Ziziphus mucronata* and *Combretum zeyheri,* the " raasblaar ", are occasional. The *Combretums* have 4-winged fruits, those of *Combretum zeyheri* being largest of the South African species, 2 to 3 inches broad and 1½ to 2

Tussen hierdie hoë bosveldbome vind mens groot vorms van *Croton gratissimus* hoewel dit nie so volop is as hoër-op teen die berg waar dit as struik opvallend oorheersend is nie. Dit het 'n aangename geur en sierlike blare met silweragtige onderkante en 'n menigte bruin stippels. *Ochna pulchra, Strychnos pungens en Tapiphyllum parvifolium* is almal meer volop op die noordelike hange as op die vlakte. Die bergvorm van eersgenoemde is veel kleiner as die plante wat op die vlakte groei.

Die wilde-sering, *Burkea africana,* maak sy verskyning onder teen die hange en word hoër-op meer volop. Dit is 'n klein boompie met 'n wye kroon en saamgestelde blare aan die punte van die takkies wat met 'n rooibruin viltagtige haarkleed bedek is. Die soort kom in die omgewing van Pretoria voor en is ook in Rhodesië en Portugees-Oos-Afrika versamel. Volgens Galpin is die hout baie waardevol vir die maak van meubels en waens. Die bome dra plat tipiese peule.

Chrysophyllum magalismontanum.

Stamvrug. Wild Plum.

Die stamvrug, *Chrysophyllum magalismontanum,* is algemeen op die rotsagtige dagsome van die Magaliesberg. Soos die volksnaam aandui, word die vrugte aan ou stamme of takke gedra. Die rypes is eetbaar, helder donkerrooi, elipsvormig en omtrent 'n duim lank. Dit maak 'n heerlike jellie. Die plant word as 'n struik van 5 voet of 'n boom van omtrent 20 voet aangetref. Die bokant van die blare is donkergroen en die onderkant is roesbruin in die geval van jong blare, grys in die geval van oues.

Die moepel, *Mimusops zeyheri,* wat soos die stamvrug tot die familie *Sapotaceae* behoort, kom ook hoog teen die hange voor. *Combretum gueinzii* is taamlik algemeen maar *Combretum zeyheri* word deur slegs een of twee bome verteenwoordig. *Lannea discolor* word af-en-toe as 'n klein boompie op die berg aangetref. *Strychnos cocculoides* is 'n klein doringagtige boompie van 8-12 voet wat halfpad teen die hange verskyn maar naby die kruin van die berg meer volop word. Die vrug is tot

inches long. *Combretum gueinzii* has much smaller fruits, up to an inch long. The leaves have a velvety indumentum above and below and are opposite so that in the absence of flowers or fruits, smaller specimens of this species are likely to be confused with *Vangueria infausta.* The latter, however, is recognisable by its characteristic Rubiaceous interpetiolar stipule and frequently by the galls or black fungus which appear on the leaves. This fungus is interesting in that it has defied classification for fruiting bodies have never been discovered to permit of an identification.

Vangueria infausta is fairly common on the lower slopes. More rare are *Pavetta assimilis, Ehretia rigida* and *Dombeya rotundifolia. Clerodendrum* occurs on these lower slopes as a small, much-branched tree with the leaves often in whorls of three. Bees are attracted by the flowers which occur in dense white clusters. The Zulus, incidentally, use an infusion of the root as a snake-bite remedy. The " rosyntjiebos ", the " wild apricot " and *Euclea lanceolata* extend into this area.

In this tall bushveld area one finds tall forms of *Croton gratissimus* although it is not as common as on the mid and upper slopes of the mountain where it becomes conspicuously dominant as a shrub. It is sweet-scented with ornamental leaves which are silvery beneath and covered with brown dots. *Ochna pulchra, Strychnos pungens* and *Tapiphyllum parvifolium* are all more common on the northern slopes than on the flats, the first named being a far more stunted tree than it is in the scrub area.

Burkea africana, the " wildesering ", makes its appearance on the lower slopes and becomes more frequent higher up. It is a small tree with a spreading crown and has compound leaves borne at the ends of the branchlets which are covered with reddish tomentum when young. The species is found round Pretoria and is recorded also from Rhodesia and Portuguese East Africa. According to Galpin the wood is most valuable for furniture and wagon wood. The trees bear flattened leguminous pods.

Chrysophyllum magalismontanum, the " stamvrug ", so named because the fruits are borne on the old stems or branches, is common on the rocky outcrops of the Magaliesberg. It may be a shrub of 5 feet or a small tree about 20 feet high. The leaves are dark green above, rufo-tomentose beneath on young leaves, grey-tomentose on the older ones. The fruit is edible, bright scarlet when ripe, ellipsoid in shape, and about 1 inch long. It makes a delicious jelly.

Mimusops zeyheri, the " moepel ", belonging like the " stamvrug " to the family *Sapotaceae,* is also found on the upper slopes. *Combretum gueinzii* is fairly common but *Combretum zeyheri* is represented by only one or two trees. *Lannea discolor* occurs occasionally as a small tree on the mountain. *Strychnos cocculoides* is a small spinous tree of 8-12 feet which appears on the mid slopes, becoming more common near the top of the mountain. The fruit is up to 2 inches in diameter with an edible pulp and can be buried in the ground to ripen. Another species of *Gymnosporia, G. tenuispina,* is a constituent of the *Croton* dominated area. It is a greyish shrub of 2-4 feet with slender spines up to 2 inches long and a three-angled fruit which is yellowish-brown when ripe. The species is found from the eastern Transvaal to Bechuanaland but is most frequent round Pretoria.

2 duim in deursnee, het 'n eetbare vrugmoes en kan in die grond begrawe word om ryp te word. 'n Ander soort van *Gymnosporia, G. tenuispina,* kom voor in die gebied wat deur *Croton* oorheers word. Dit is 'n gryserige struik, 2-4 voet hoog, met lang dun dorings wat tot 2 duim lank word en 'n 3-hoekige vrug wat geelbruin is as dit ryp is. Die soort kom vanaf die Oostelike Transvaal tot in Betsjoeanaland voor maar is veral om Pretoria volop.

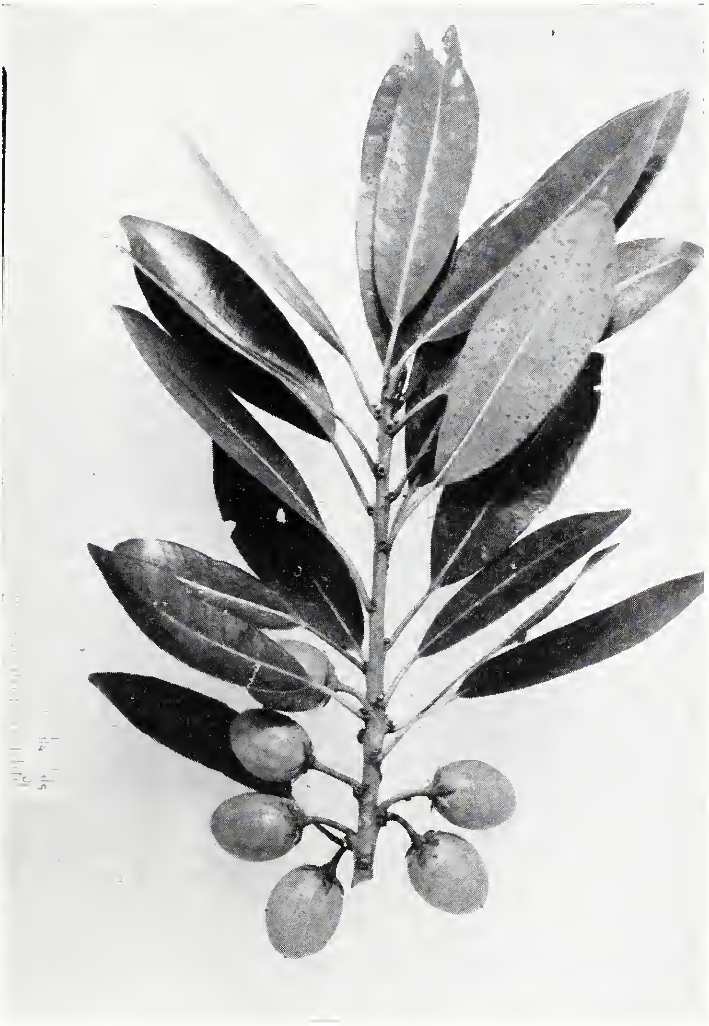
Die gifblaar, *Dichapetalum cymosum,* word in die reservaat aangetref, hoofsaaklik teen die noordelike hange. Dit is 'n dodelike gif vir vee, veral gedurende die vroeë lente wanneer daar nog nie groen gras is nie. Die soort word soms verwar met die grysappel wat onskadelik is en inderdaad eetbare vrugte dra. Albei is dwergstruikies van 6-12 duim maar die grysappel (*Parinari capense*) kan maklik aan die grys viltagtige bedekking op die onderkant van die blare herken word. Die gifblaar het afwisselende gladde blare met opvallende are.

Abrus laevigatus, die peuldraende klimplant, word halfpad teen die berg nog aangetref terwyl *Cryptolepis transvaalensis,* 'n lid van die melkbos-familie, hier volop is. Laasgenoemde is 'n houtagtige klimplant met teenoorstaande, byna ronde blare met stekelpuntjies. Die blommetjies is klein en die kokervrugte wat, tipies vir alle *Asclepiadaceae,* in pare gedra word, is omtrent 2 duim lank. Die plant groei tot 6 voet of hoër en word hoofsaaklik in die Magaliesbergreeks aangetref hoewel dit ook uit Basoetoeland bekend is.

Myrothamnus flabellifolia.

Berg-boegoe. Resurrection Plant.

Soos te verwag, is daar 'n geleidelike oorgang tussen die plantegroei halfpad teen die hange en dié hoër-op. Die berg-boegoe of opstandingsplant, *Myrothamnus flabellifolia,* is 'n uiters interessante plant wat op albei hoogtes aangetref word. Dit is 'n houtagtige struikie, 1 tot 2 voet hoog, wat in rotsskeure op die warm noordwestelike hange van die reservaat



,, Moepel."
Mimusops zeyheri.

The "gifblaar", *Dichapetalum cymosum*, is found in the reserve, favouring the northern slopes. It is dreaded by farmers for its poisonous properties, especially in spring before the grasses have recovered from the effects of winter. The species is sometimes confused with the "grysappel" which is innocuous and actually has edible fruits. Both plants are dwarf

voorkom, asook op kaal rotsplate wat suidwaarts front. Daar is geen rekord van die plant ten suide van die Magaliesberg waar Zeyher dit in 1840 ontdek het nie. Dit is algemeen op die noordelike hange van dié reeks en strek tot in Rhodesië en tropiese Afrika. Die plant is sterk xerofities en krimp tot 'n verskrompelde bruin vorm sodra droogtetoestande intree, maar in klam weer of in gunstige grondtoestande vertoon dit 'n menigte groen, waaiervormige blaartjies. Selfs 'n skynbaar dooie takkie sal spoedig ná dit in water geplaas is, weer heldergroen en fris voorkom. Hierdie eienskap is verantwoordelik vir die naam „opstandingsplant".

Bo teen die hange en op die kruin vind ons *Osyris compressa,* 'n boomstruik tot 10 voet hoog met stewige, skerp blare. Dit bevat 'n looistof.

Rothmannia capensis.
Wilde-katjiepiering. Wild Gardenia.

Die wilde-katjiepiering, *Rothmannia capensis,* en *Lachnopylis montana,* wat dikwels saam op die koppies om Pretoria gevind word, kom op die kruin van die berg voor. Eersgenoemde is 'n klein immergroen boompie van 10-15 voet en dra groot wit of roomwit blomme met pers stippels in die keel. *Lachnopylis montana* is 'n klein skaduryke boompie, 9-10 voet hoog, wat baie algemeen op die koppies om Pretoria en op die Magaliesberg voorkom. Dit verkies suidelike hange maar word af-en-toe ook op noordelike hellings aangetref. Die blare is heldergroen en die soort is interessant omdat dit dwarsdeur die jaar sporadies blom, hoewel dit gedurende Oktober op die beste is. Die klein wit blommetjies word in digte bloeiwyses gedra.

Die suurpruim, *Ximenia caffra,* word bo naby die fort aangetref. Die soort is wydverspreid in Transvaal maar skaars in die reservaat. Dit

shrublets of 6-12 inches but the "grysappel" (*Parinari capense*) is easily distinguished by the grey, felt-like covering on the lower side of the leaves. The "gifblaar" has alternate, glabrous leaves which are prominently veined.

Abrus laevigatus, the leguminous climber, still occurs half-way up the mountain and *Cryptolepis transvaalensis*, an Asclepiadaceous species, growing to a height of 6 ft. or more, with opposite leaves, small flowers and paired follicles, each about 2 inches long, is very common here. Although the species has been recorded from Basutoland, most records of it are from the Magaliesberg, near Pretoria.

The vegetation of the mid slopes, as would be expected, merges gradually into that of the upper slopes; a most interesting plant on both being the "resurrection plant", *Myrothamnus flabellifolia*. It is a woody shrublet 1 to 2 feet high occurring in rock crevices on the warm north-west slopes of the reserve, and also on sheer rock faces with a southern aspect. There is no record of the plant south of the Magaliesberg where it was first discovered in South Africa by Zeyher in 1840. It is common on the northern slopes of this range and extends into Rhodesia and tropical Africa. The plant is essentially xerophytic, contracting to a shrivelled brown form with the onset of dry conditions but in moist weather or under favourable soil conditions numerous green, fan-shaped leaves are conspicuous. Even a dead-looking twig will expand when put into water and it is this curious property which gives the plant the name of "resurrection plant".

On the upper slopes and the summit we find *Osyris compressa*, an arborescent shrub up to 10 feet high with thick, rigid, acute leaves. It yields a tanning material.

Rothmannia capensis (the Wild Gardenia), and *Lachnopylis montana*, two species which are frequently found in association with one another on the koppies round Pretoria, occur on the summit of the mountain. The "Wild Gardenia" is a small evergreen tree of 10-15 feet with large white or creamy-white flowers, red or purple spotted in the throat. *Lachnopylis montana* is a small umbrageous tree, 9-12 feet high, which is very common on the Pretoria hills and on the Magaliesberg. It favours south aspects but is occasionally found on the northern slopes. The foliage is a bright green and the species is interesting in that it flowers sporadically throughout the year, being at its best during October. The flowers are small and white in dense inflorescences.

The "suurpruim", *Ximenia caffra*, is found near the fort at the top. The species is widely distributed in the Transvaal but is rare in the reserve. It is a spinous shrub or small tree with an oblong fruit up to 1½ inches in length which turns orange or red when ripe and has an acid flavour.

On the summit, too, is *Rhus magalismontana*, a shrublet 1 foot high which is addicted to the koppies of the Transvaal. With this diminutive representative of the *Rhus* genus we find *Brachylaena rotundata*, the "bergvaalboom", a tree form of the Compositae which is a family in which trees are exceptional. It is a small tree of 8-12 feet with white inflorescences and undulate leaves having a silvery undersurface. A Transvaal species, it occurs most frequently on koppies in the Pretoria and Witwatersrand area.

is 'n stekelrige struik of klein boompie met 'n 1½ duim lange, eetbare, langwerpige vrug wat oranje of rooi verkleur as dit ryp word en 'n frankerige suur smaak het.

Bo-op die kruin groei ook *Rhus magalismontana,* 'n struikie van 1 voet wat baie lief vir die Transvaalse koppies is. Saam met hierdie klein dwergkaree vind ons die bergvaalboom, *Brachylaena rotundata,* een van die weinige bome wat aan die sonneblom-familie (*Compositae*) behoort. Dit is 'n klein boompie van 8-12 voet wat wit bloeiwyses en golwende blare met silweragtige ondervlakke dra. Dit is 'n Transvaalse soort wat veral op die koppies om Pretoria en die Witwatersrand voorkom.

Die reedsgenoemde bergmispel en die stamvrug kom ook op die kruin voor en strek tot aan die suidelike hange waar die stamvrug taamlik volop is. Daar is ook 'n klein lappie *Gymnosporia tenuispina* op die berg. Net soos *Rothmannia capensis* en *Landolphia capensis* word dit egter nie op die suidelike aspekte gevind nie. Laasgenoemde, bekend as die wildeperske, verkies skynbaar onbeskutte plekke waar dit oor rotse of bosse rank. Dit het geurige wit of roomkleurige blomme in klein bloeiwyses wat die funksie van hegrankies vervul. Die eetbare vrug is omtrent 2 duim in deursnee en het die kleur van 'n appelkoos.

Myrsine africana groei op die kranse en aan die voet van rotse in skaduryke hoekies naby die kruin. Dit is 'n halfstruik van 1 tot 3 voet met klein rooi blommetjies en perserige swart bessies. Die soort kom voor vanaf die Kaapse kusdistrikte tot op die Transvaalse hoëveld en word veral op bosrande, in bosse, in beskutte plekke op suidelike hange of in klowe aangetref. *Royena lucida,* 'n struikie wat soortgelyke groeiplekke verkies, dra wit blomme met 'n kelk wat vergroot, blaasvormig word en die ryp vrug omhul.

Die kafferdoring, *Acacia caffra,* is oorheersend op die diabaas van die suidelike hange. Hierdie boom van omtrent 15 voet dra effens-sekelvormige peule en verkies beskutte groeiplekke op die hoëveld. Op die kruin van die uitloper wat in 'n westelike rigting na die Apiesrivier afloop, kom *A. caffra* gladnie voor nie en sy plek as oorheersende soort word ingeneem deur *Ochna pulchra* en *Burkea africana,* terwyl eersgenoemde saam met *Rhus lancea* op die suidelike helling van die uitloper weer opvallend word. Die rede hiervoor is dat die uitloper wat hoofsaaklik uit sandsteen bestaan, aan sy suidelike hang diabaas blootstel.

Aan die voet van die kranse op die suidelike helling tref mens groot wildevye aan met hul stamme dig teen die rotse aangedruk. In soortgelyke groeiplekke groei die moepel, *Mimusops zeyheri,* 'n wye boom van omtrent 25 voet. Hierdie soort is betreklik skaars maar die nouverwante *Chrysophyllum magalismontanum* is algemeen onder die kranse en halfpad teen die hange. Saam met *Myrsine africana, Euclea lanceolata, Tapiphyllum parvifolium* en die opstandingsplant kom dit ook hier-en-daar op kaal rotswande voor. In hierdie groeiplek is hulle almal dwergstruikies van ongeveer 2 voet. *Croton gratissimus* is hier algemeen as 'n struik of boompie van 6-8 voet, terwyl *Dombeya rotundifolia* in sy normale grootte sporadies oor die suidelike hang voorkom. *Vangueria infausta* is 'n ander lid van hierdie flora maar sy blare is hier aanmerklik groter en slapper as op die meer-blootgestelde noordelike helling. Hier is ook twee kareesoorte, nl. *Rhus zeyheri,* 'n volop, gryserige struikie van 2-4 voet met poeierbedekte blare, en *R. pyroides,* 'n doringrige struik of boompie.

The " bergmispel " and the " stamvrug " are old friends encountered among the summit flora and extending down the southern slopes, the latter being quite common. There is, too, a small patch of *Gymnosporia tenuispina* on the top which, like *Rothmannia capensis* and *Landolphia capensis,* disdains the more sheltered southern aspect. The last-named, known as the " wild peach ", appears to favour exposed positions and is found as a scrambling shrub among rocks or climbing over bushes. It has sweet-scented white or creamy flowers in small inflorescences which act as tendrils. The fruits are edible, about two inches in diameter, with an apricot colour.

Myrsine africana grows on the krantzes and at the base of rocks in shaded nooks near the summit. It is a sub-shrub of 1-3 feet with small red flowers and purplish-black berries. Occurring from the coastal districts of the Cape to the highveld of the Transvaal, the species is common on forest margins, in forests, or sheltered on south slopes or in kloofs. Another species which favours these habitats is *Royena lucida,* a small shrub with white flowers whose calyx becomes inflated when in fruit.

On the diabase of the slopes facing directly south *Acacia caffra,* the " Kaffirthorn ", is dominant. This tree, about 15 feet high with flattened, slightly falcate pods, favours sheltered habitats on the highveld. It is interesting to observe that on the top of the spur running west and sloping down towards the Apies River this species does not occur, its dominant position being assumed by *Ochna pulchra* and *Burkea africana,* while on the southern slope of the spur *Acacia caffra* again becomes conspicuous with *Rhus lancea.* The reason for this is that the spur is sandstone changing to diabase again on its southern aspect.

At the base of the krantzes on the south slope one finds large *Ficus* trees branching from stems adpressed to the rocks. In similar habitats is *Mimusops zeyheri,* the " moepel ", a spreading tree about 25 feet high. This species is fairly rare but the closely related *Chrysophyllum magalismontanum* is common below the krantzes and on the mid slopes. It occurs occasionally on the sheer rock face with *Myrsine africana, Euclea lanceolata, Tapiphyllum parvifolium* and the " resurrection plant ", all shrublets of about 2 feet in this habitat. *Croton gratissimus* is common as a shrub or small tree of 6-8 feet while *Dombeya rotundifolia* occurs irregularly over the south slope, exhibiting its usual range of size. *Vangueria infausta* is another constituent of this flora but with its leaves noticeably larger and more flabby than on the more exposed northern slope. There are two species of *Rhus, R. zeyheri,* a common, greyish, glaucous-leaved shrub of 2-4 feet, and *R. pyroides,* an armed shrub or small tree.

Near the river are the " blinkblaar-wag-'n-bietjie ", the " witstinkhout ", " kareeboom " and small specimens of " morula ". Down here, too, is *Combretum erythrophyllum,* commonly called " vaderlandswilg ", also known as " roodeblad " from the autumnal colouration of its leaves. It is a tree up to 40 feet with a fairly smooth bark and winged fruits ½ inch long. The species provides a gum used in tanning and is reported to be a very good substitute for Gum Tragacanth. It prefers river-banks but does grow under more arid conditions.

Above the krantzes on the south-western slope is *Heteromorpha trifoliata,* a lanky Umbelliferous shrub, and *Cussonia paniculata,* the " kiepersol ", both of which species are very rare in the reserve.

Naby die rivier is daar blinkblaar-wag-'n-bietjie, witstinkhout, karee en klein maroelaboompies asook die vaderlandswilg, *Combretum erythrophyllum*, wat weens sy herfskleure soms ook „roodeblad" genoem word. Die boom groei tot 40 voet hoog en het 'n taamlik gladde bas en gevleuelde vrugte van ongeveer ½ duim lank. Dit verskaf 'n gom wat vir looidoeleindes gebruik word en volgens bewering 'n goeie plaasvervanger vir „Gum Tragacanth" is. Die boom word gewoonlik op rivierwalle aangetref maar groei ook onder droër toestande.

Bokant die kranse op die suidwestelike hang groei twee soorte wat in die reservaat baie skaars is, nl. *Heteromorpha trifoliata*, 'n lang en skraal skermdraende struik, en *Cussonia paniculata*, die kiepersol.

Van die klimplante word *Rhoicissus cuneifolius*, wat soms as 'n struik groei, en die twee soorte klimop of „Traveller's Joy", *Clematis brachiata* en *Clematis oweniae*, ook nog aangetref. *C. brachiata* het wit of roomkleurige blomme en donkergroen blare. *C. oweniae* is die mees algemene Transvaalse soort en word aan sy kleiner blare van laasgenoemde onderskei.

Die hange naby die rivier is betreklik ryk aan kruidagtige plante en twee soorte van die salie-familie word hier aangetref, nl. *Aeolanthus canescens*, met wit of ligpers blomme, en 'n sterkvertakte *Iboza* wat ruigtes van 3 voet vorm. Twee onkruide wat aan die *Amarantaceae* behoort, kom ook hier voor, nl. *Pupalia lappacea* en *Achyranthes aspera*. Laasgenoemde is 'n gewone onkruid wat wydverspreid oor die warm dele van die wêreld voorkom. Sy stekelpuntige skutblare klou baie maklik aan klere en diere vas.

Rhynchosia nitens, 'n regop, sterkvertakte halfstruik wat geel blomme en grys blare met syerige ondervlakke dra, is 'n soort wat nog net in die Pretoriase distrik gevind is. Dit kom saam met *Hibiscus calyphyllus* teen die middel van die hange voor. Laasgenoemde is 'n struikagtige soort wat geel blomme met donkerrooi harte dra. Dit vorm digte lappe struikgewas tot onder teen die hange.

Twee Solanum-soorte word aangetref, nl. *S. giganteum* en *S. panduraeforme*. Eersgenoemde hou van beskutte plekke en word gewoonlik op suidelike berghange of in bosse aangetref. Dit dra bundels aantreklike, bloedrooi bessies. *S. panduraeforme* is 'n doringrige halfstruik met pers blomme en geel vrugte omtrent so groot as okkerneute. Op die grasbegroeide hellings tref die oog *Helichrysum setosum*, 'n komposiet van omtrent 18 duim met geen blomme en 'n sterk geur.

Dit is verbasend dat die gifblaar en die grysappel op hierdie suidelike hange saam groei. Die goorappel, *Pygmaeothamnus zeyheri*, kom ook halfpad en hoog teen die suidelike hange voor. Sy groeivorm en blink, gladde blare is baie soos dié van die gifblaar. Die blare ontstaan egter twee-twee of in groepe van drie uit dieselfde knoop en dra opvallende steunblare in die oksels, terwyl dié van die gifblaar duidelik afwisselend is.

Die teenwoordigheid van *Protea caffra* op die suidelike hange is noemenswaardig. Volgens A. O. D. Mogg is dit gereeld op die diabaas en aanliggende skalies in die Pretoriase distrik en byna afwesig in die Magaliesbergreeks waar dit die harder rotse vermy.

Die geologie van die gebied word afsonderlik behandel maar hier kan terloops verwys word na die verband wat dit met die plantegroei het. Die onderste deel van die suidelike hange bestaan uit skalie wat weinig plantegroei behalwe gras dra. Halfpad teen die suidelike hange loop 'n smal plaat diabaas wat 'n redelike hoeveelheid plantegroei met diep

Climbers include the robust *Rhoicissus cuneifolius*, which grows sometimes as a shrub, and the two species of " Traveller's Joy " or " klimop ", *Clematis brachiata* and *Clematis oweniae*. The former has white or creamy flowers and dark green leaves. *Clematis oweniae* is the most abundant Transvaal species and is distinguishable from the other species by its smaller leaves.

The slopes near the river are relatively rich in herbaceous growth and one finds two species of the *Labiatae*, *Aeolanthus canescens*, with white or pale purple flowers, and a stout branching *Iboza* forming thickets 3 feet high. There are also two Amarantaceous weeds, *Pupalia lappacea* and *Achyranthes aspera*. The latter is a common weed widespread in the warm parts of the continent, whose spinescent bracts cling to clothes and animals very easily.

A species whose recorded distribution is restricted to the Pretoria district is *Rhynchosia nitens*, an erect, profusely branching suffrutex with yellow flowers and grey leaves with a silky under-surface. It occurs on the mid slopes, as does *Hibiscus calyphyllus*, a shrubby species whose yellow flowers have a dark-red centre. This plant forms patches of dense undergrowth on the lower and mid slopes.

Two species of *Solanum* are found, *S. giganteum* and *S. panduraeforme*. The former favours sheltered positions and is generally found on southern mountain aspects or in forests. It bears bunches of attractive scarlet berries. *Solanum panduraeforme* is an armed sub-shrub with mauve flowers and yellow fruits about the size of walnuts. On the grassy slopes *Helichrysum setosum*, a yellow-flowered Comopsite, about 18 inches high, with a strong scent, is conspicuous.

It is surprising to find on these southern slopes the " gifblaar ", growing in association with the " grysappel ". The " goorappel ", *Pygmaeothamnus zeyheri*, also occurs on the mid and upper south slopes. It has a growth form and shiny, glabrous leaves very similar to those of the " gifblaar " but is distinguishable from that species because the leaves arise in two's and three's from the same node with a conspicuous interpetiolar stipule, whereas the " gifblaar " has distinctly alternate leaves.

Reference should be made to the presence of *Protea caffra* on the southern slopes. According to A. O. D. Mogg it is constant on the diabase and contiguous shales in the Pretoria district, avoiding the harder rocks, and is almost absent from the Magaliesberg range.

The geology of the area is being dealt with separately but a passing reference may be made to its bearing on the vegetation. The lower south slopes consist of shale which supports very little vegetation except grass. Across the mid slopes on the south side runs a narrow sill of diabase which supports a fair amount of deep-rooted vegetation, especially thorn trees, and it is on this diabase that *Acacia caffra* and *Rhus lancea* occur. The upper south slope, the summit and the whole northern slope are quartzite with the exception of a second diabase sill running between the summit and the aforementioned sill on the southern mid slopes. This diabase traverses the southern slopes from the deep red soil in the valley just east of the road going over Voortrekker Nek to the *Acacia caffra* valley going down to the Apies River, supporting trees of this species and of *Rhus* species along its course.

wortels onderhou, veral doringbome, en *Acacia caffra* en *Rhus lancea* kom daarop voor. Die boonste deel van die suidelike hang, die kruin en die hele noordelike hang bestaan uit kwartsiet met die uitsondering van 'n tweede diabaasplaat tussen die kruin en die reedsgenoemde plaat aan die suidelike helling. Hierdie diabaas loop deur die suidelike hange vanaf die diep rooigrond in die vallei net oos van die pad oor Voortrekkernek tot aan die kafferdoringvallei wat na die Apiesrivier afloop. Al langs hierdie dagsoom groei *Acacia caffra* en verskillende *Rhus*-soorte.

Afgesien daarvan dat die formasies op die noordelike en die suidelike hange verskillend is, is daar meer vog aan die noordekant. Daar is verskeie redes hiervoor. Die noordelike hang hel teen 'n hoek van ongeveer 40 grade vanaf die vlakte sodat die afloop teen die geleidelike val min is en die water 'n kans kry om in te sak. Daarenteen is die suidelike hange steiler en loop die water vinniger weg sodat dit nie tussen die rotsskeure kan indring en diep in die grond afsak nie. Verder is die sandsteen van die noordelike hange hard en goedgelaagd sodat dit die sirkulasie van water beheer. Die lae hel noordwaarts wat veroorsaak dat die ondergrondse watervoorraad die lae volg en sodoende naby die oppervlakte bly. Aan die noordekant is vog dus makliker vir die wortels van plante bekombaar as aan die suidekant waar die wortels dieper moet indring en gevolglik rots teëkom.

Die plantegroei is digter naby die voet van die berg aan die noordekant, nie alleen weens die beskutte ligging nie, maar ook omdat daardie deel 'n beter watertoevoer, onder- sowel as bogronds, geniet. Die ondergrondse water is geneig om meer na die oppervlakte deur te dring wanneer dit die voet van die berg nader terwyl die afloopwater van die hange ook hier beskikbaar is. Nie alleen ontvang die grond meer water nie, maar dit is ook meer waterhoudend aangesien dit betreklik vol humus is. Die groter bosveldvorme groei dus hier terwyl die doringstruikgewas net noord van die Wonderboom waarskynlik groei op meer diabaas wat in dié gebied aangedui word. Ten noorde daarvan kom weer skalie en sand voor, maar hier word die bome nie deur die geologiese grense beperk nie.

'n Interessante verskynsel is die siënietdyk wat aangedui word deur die strook digte plantegroei wat dit dra. Dit is duidelik sigbaar as mens die Magaliesberg van die noordekant nader. Die dyk loop vanaf die vlakte tot by Voortrekkernek en oor die kruin waar die pad dit volg. Aangesien die chemiese samestelling van siëniet en diabaas ooreenstem, is hierdie dyk ongetwyfeld verantwoordelik vir die klompie kareebome bo-op die nek.

Oorweging van sekere klimatologiese faktore.—Die gebied onder behandeling het 'n jaarlikse reënval van omtrent 25 duim wat feitlik tot die somermaande beperk is. Die *gemiddelde* datums waarop die eerste en die laaste ryp voorkom, is die 20ste Mei en die 31ste Augustus respektiewelik.

Die rigting van die heersende winde is nie baie bestendig nie, veral nie in die winter nie. Gedurende die somer is hulle hoofsaaklik noordoos. In die winter kom suide- en westewinde effe meer dikwels as in die somer voor, maar die seisoenvariasie is gering. Die jaarlikse gemiddelde spoed van die wind is 8·4 m.p.u. Die gemiddelde persentasie-frekwensie van die windrigting vir die jaar toon aan dat die meeste wind in die noordooskwadrant voorkom.

Besides the formations on the northern and southern slopes being different, there is more moisture on the north side. This is for various reasons. The north slope rises at an angle of about 40 degrees from the plain so that the run-off of water is not so considerable on this more gentle dip slope and it has an opportunity to penetrate underground. On the southern slopes on the other hand, the steeper incline carries the water away more rapidly so that it does not have the same opportunity to enter rock crevices and go underground. Then the sandstone of the northern dip slopes is hard and well stratified and so controls the circulation of water. The strata dip north, causing the underground water-supply to follow the stratification planes and thus it is kept near the surface. Moisture is thus more easily available to the roots of plants whereas on the south slope they must penetrate deeper in their quest for water and thus they encounter rock.

The vegetation is denser near the foot of the hill on the north side not only because of its sheltered position but also because this area enjoys a better water supply, both subterranean and above-ground. The underground water is inclined to rise nearer the surface as it approaches the foot of the hill while the area benefits by the run-off from the hill slopes. Besides being more water-receiving the ground is rendered more water-retaining by being relatively full of humus. Thus we find it occupied by the taller bushveld forms while the thorn scrub area just north of the Wonderboom itself is apparently where more diabase comes in, diabase being recorded for this region. North of this is shale and sand again, with a transgression of trees across the geological borders.

An interesting feature is the syenite dyke whose position is marked by the strip of dense vegetation it supports. This is clearly visible on approaching the Magaliesberg from the North. The dyke runs from the plain up to Voortrekker Nek over the summit of which its course is followed by the road. Similar in chemical composition to diabase, it is no doubt the presence of this syenite which accounts for the cluster of " kareebome " on top of the Nek.

A Consideration of Some Climatological Factors.—The area dealt with has an annual rainfall of about 25 inches practically confined to the summer months. The *average* dates of occurence of the first and last frosts are respectively the 20th May and 31st August.

The direction of prevailing winds is not very constant, particularly during winter. During summer they are mainly north-east. During winter, south and west winds occur slightly more than in summer but the seasonal variation is very slight. The mean hourly wind velocity for the year is 8·4 m.p.h. The average percentage frequency of wind direction for the year shows them to be most frequent in the north-east quadrant.

REPTIELE EN AMFIBIË VAN DIE WONDERBOOM-NATUURRESERVAAT

deur Dr. V. FitzSimons

DIE Wonderboom-reservaat is aan die noordelike hang van die Magaliesberg geleë en val dus binne die bosveld-kompleks. Die fauna wat daar voorkom, bestaan ook hoofsaaklik uit bosveld-tipes, hoewel 'n paar hoëveldse vorme miskien vanaf die suide indring.

Oppervlakkig sou dit voorkom asof reptiele en amfibië in die reservaat skaars of afwesig is. Die feit dat hierdie nietige, koubloedige diere nie maklik te sien is nie, beteken egter nie dat hulle nie aanwesig is nie; meeste van hulle is die natuurlike prooi van soogdiere en voëls, en hul bestaan hang dus af van hul vermoë om ontdekking te vermy. Verbergende kleur, vlugheid van beweging en ander metodes om hulle te beskerm teen hul menigte vyande, insluitende die mens, is dus by hulle tot 'n baie hoë mate ontwikkel. Gevolglik is dit net deur baie versigtig te wees en sorgvuldig te soek dat mens hierdie skugtere diere kan sien en hul interessante gewoontes kan waarneem. 'n Sorgvuldige studie van die gebied het egter getoon dat daar 'n onverwagte aantal soorte voorkom, insluitende omtrent 19 akkedisse, 22 slange en omtrent 'n half-dosyn paddas en skurwepaddas. Verskeie van hierdie is nagdiere en is dus nie bedags te sien nie, terwyl 'n paar van die ander hoofsaaklik ondergronds lewe en slegs gedurende en ná goeie reens te voorskyn kom.

Lygodactylus capensis.

FOTO 1.—Gewone Klein Muurgeitjie. PHOTO 1.—Common Dwarf Gecko.

Akkedisse is die mees talryke van die soorte wat mens kan verwag om bedags te sien, en hierdie diere sal nou kortliks bespreek word. In die laer, meer gelyk deel van die reservaat kom 'n aantal grondbewonende

REPTILES AND AMPHIBIANS OF THE WONDERBOOM NATURE RESERVE

by Dr. V. FitzSimons

SITUATED as it is on the northern slopes of the Magaliesberg, the Wonderboom Sanctuary just falls within the bushveld complex and the fauna found there thus consists mainly of bushveld types, with perhaps a few highveld forms intruding from the south.

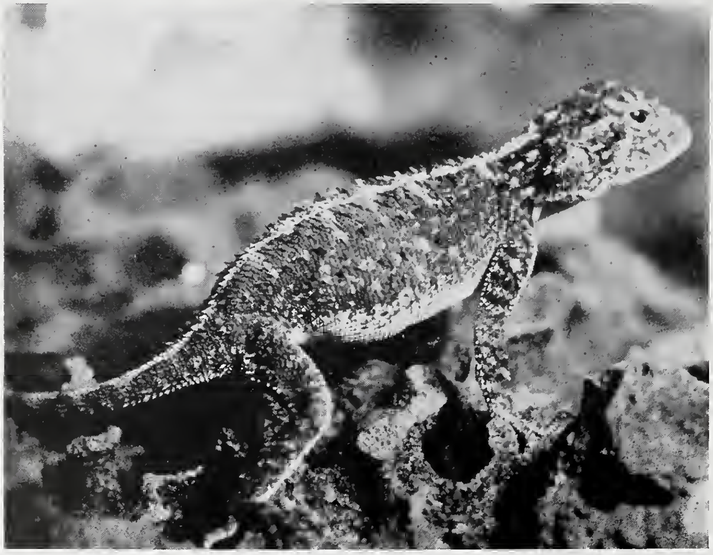
Superficially it would appear that there is little or nothing in the way of reptiles and amphibians to be seen in the sanctuary. But the fact that these lowly, cold-blooded creatures are not readily seen, does not mean that they are not present, as the majority form the natural prey of mammals and birds and their very existence thus depends on their ability to avoid detection. They have thus developed to a very high degree camouflage, quickness of movement and other devices to protect themselves from their numerous enemies, among whom perhaps not the least is man. As a result, it is only by the exercise of extreme stealth and keenness of eye that these elusive creatures can be spotted and their interesting habits observed. A careful study of the area has, however, disclosed the occurrence of a rather unexpected number of species, made up of about 19 lizards, 22 snakes and half a dozen or so frogs and toads. Of these, quite a few are nocturnal and thus not abroad during the day, while a few others live mainly underground, appearing only during and after good rains.

Of the species most likely to be seen during the day, lizards are the most numerous and some account of the latter now follows. On the lower, more level section of the sanctuary, there are quite a number of ground-living lizards to be seen. Chief among these are the Spotted and Striped Sand Lizards, restlessly scuttling about between the small shrubs and bushes, snapping up ants and other small insects, which form their main diet. Here one may also observe the smooth-scaled skinks, of which there are three different kinds, moving around more sedately or sometimes frivolously chasing one another up the tree stems. A rarity which one may with luck see on occasion, is the Yellow-throated Lizard; he is a fairly large chap, beautifully marked above with yellow, black-edged stripes, but very shy and elusive.

There are in the sanctuary three types of Agamas or Koggelmanders, e.g. the Spiny Ground Agama, the Tree or Black-necked Agama and the Rock Agama. The first of these is a squatly-built little creature, which relies on its protective colouration to escape detection among the dead leaves and other vegetable matter around the bases of small bushes which it frequents; the Tree Agama, as its name implies, is arboreal but is extremely difficult to detect owing to its habit of always sliding round the tree trunks or branches so as to place itself on the opposite side of such to the intruder; like other agamas, it is very curious and inquisitive and, if undisturbed, will invariably peek round cautiously to see what is happening on the other side. The Rock Agama is only found on the higher parts of the sanctuary, running over the exposed rocks on the

akkedisse voor. Die belangrikste is die Gevlekte en Gestreepte Sandakkedisse wat rusteloos tussen die klein struike en bossies rondhardloop en miere en ander klein insekte, hul vernaamste voedselbron, verorber. Hier kan mens ook sien hoedat die drie soorte gladdeskub-akkedisse wat hier voorkom, kalmer rondbeweeg of mekaar soms spelerig teen boomstamme opjaag. 'n Seldsaamheid wat mens soms per geluk te sien kan kry, is die Geelkeel-akkedis; hy is 'n taamlike groot kêrel, pragtig gekleur op sy bokant met geel strepe omlyn met swart, maar baie skugter en sku.

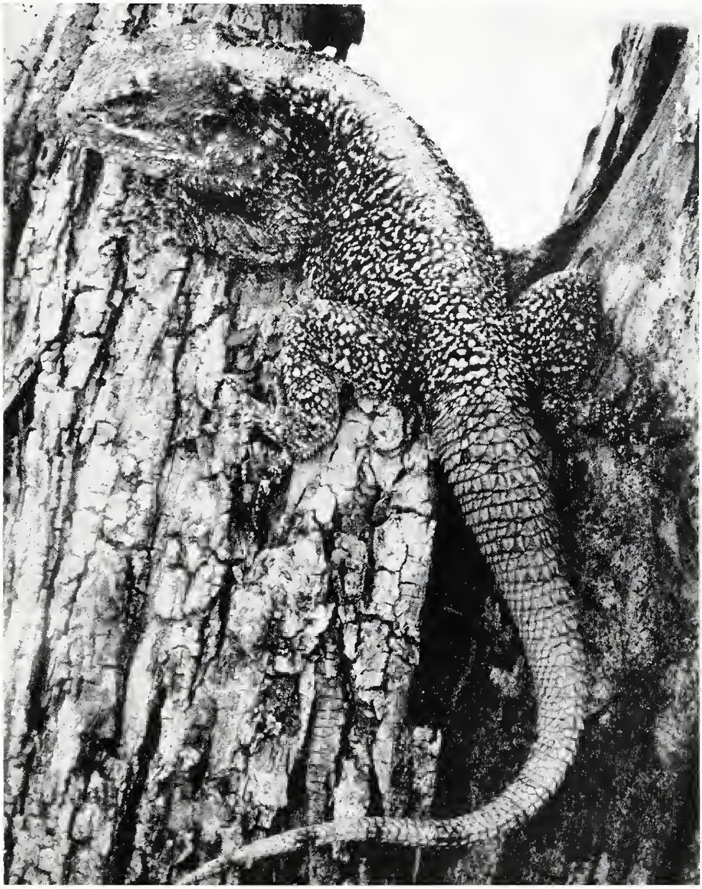
Daar is in die reservaat drie tipes Koggelmanders, nl. die Grond- of Vaalkoggelmander, die Boomkoggelmander en die Bloukop-klipkoggelmander. Eersgenoemde is 'n dik klein diertjie, wat staatmaak op sy verbergende kleur om ontdekking te vermy tussen die dooie blare en ander plantaardige materiaal rondom die basisse van die bossies waarin hy voorkom; die Boomkoggelmander is 'n boombewoner, soos sy naam aandui, maar is baie moeilik om te sien te kry aangesien hy die gewoonte het om rondom die boomstamme of takke te beweeg sodat hy altyd op die teenoorgestelde kant daarvan is as die indringer. Soos ander koggelmanders is hy baie nuuskierig en as hy nie gepla word nie, sal hy sonder uitsondering omloer om te sien wat gebeur aan die ander kant. Die Bloukop-klipkoggelmander word slegs in die hoër dele van die reservaat gevind, waar hy oor die blootgestelde klippe op die kruin van die berg hardloop, en aan die westelike kant, wat na die Apiesrivier front. Hoewel hierdie aktiewe akkedis onmiddellik in skeurtjies sal wegkruip wanneer hulle gehinder word, sal die besoeker wat 'n bietjie geduld gebruik, altyd beloon word deur spoedig te sien hoedat hulle weer te voorskyn kom en hul koppe op en af beweeg om beter te kan sien waarvoor hulle oorspronklik geskrik het.



Agama hispida.

FOTO 2.—Grondkoggelmander. PHOTO 2.—Distant's Spiny Agama.

crest of the berg and on the western side overlooking the Apies river; although these active lizards will immediately disappear into cracks when disturbed, a little patience on the part of the visitor will invariably be rewarded by seeing them soon reappear and bob their heads up and down to get a better view of the initial cause of their fright.



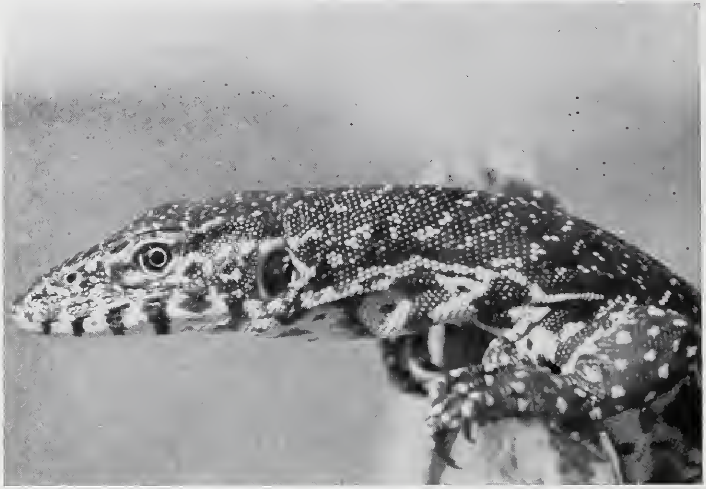
Agama atricollis.

Photo 3.—Tree Agama. Foto 3.—Boomkoggelmander.

Among the rocks one may also see occasional specimens of the shy little Girdled Lizards, which are covered with horny plates and have heavily spined tails, which form a protective barrier behind their owners when they retreat into rock cracks and crevices.

Tussen die rotse mag mens ook nou en dan eksemplare sien van die skugter klein Sonkykers wat met horingagtige skubbe bedek is. Die Sonkyker het 'n baie stekelrige stert wat 'n beskermende versperring agter die dier vorm wanneer hy in krakies en skeurtjies in die rotse wegkruip.

Die Verkleurmannetjie is taamlik volop in die meer bosagtige dele van die reservaat, maar vanweë sy welbekende vermoë om sy kleur te verander en sy langsame, weloorwoë bewegings, is hy een van die moeilikste diere om te vind.



Varanus niloticus.

Foto 4.—Jong Waterlikkewaan. Photo 4.—Young Water Leguan.

Die grootste akkedis wat in die reservaat gevind word, is die Waterlikkewaan. Hy kom voor langs die oewers van die Apiesrivier, wat die westelike grens van die reservaat vorm. Hierdie miniatuur-drake is baie bedrewe swemmers en sal by die eerste tekens van gevaar in die water inplons. Daar sal hulle dan vir geruime tyd wegkruip.

Soos reeds gemeld, is dit hoogs onwaarskynlik dat die besoeker gewoonweg enige slange sal sien. Dit sou dus van min nut wees om die vorme wat mag voorkom, breedvoerig te bespreek.

Die enigste van die paddas en skurwepaddas wat mens kan verwag om te sien, is die Gewone Waterpadda wat langs die oewers van die Apiesrivier woon en wat wonderlik goed kan spring, asook die Gewone Skurwepadda en die Rooipadda. Laasgenoemde twee kom gewoonlik in die nag uit, maar mag gedurende die reënseisoen in die somer soms bedags gesien word.

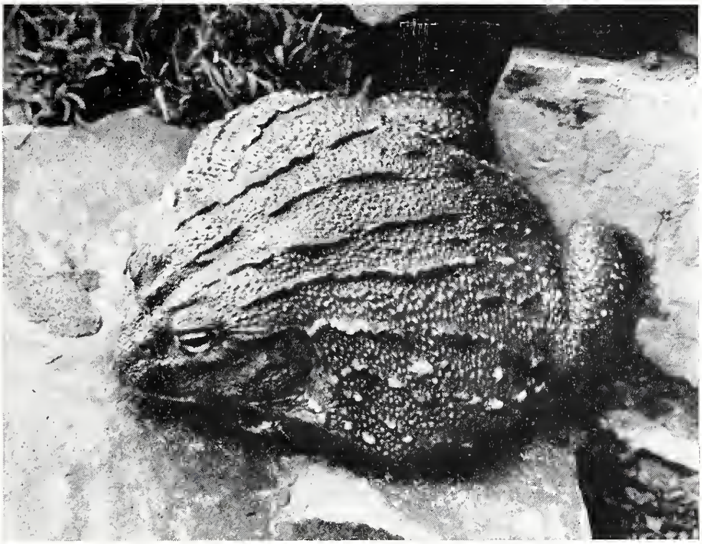
Vir die wat belangstel, volg hier nou 'n volledige lys van al die reptiele en amfibieë wat in die Wonderboom-reservaat voorkom:—

AKKEDISSE.

(1) Gewone Klein Muurgeitjie (*Lygodactylus capensis capensis*). Gevind op boomstamme, rotse en dooie fynruigte; daglewend, maar baie sku en skugter. (Sien foto 1.)

The Common East African Chameleon is not uncommon in the more bushy parts of the sanctuary, but its well-known ability to change its colour according to its surrounding and its slow, carefully considered movements, make it one of the most difficult of animals to find.

The largest lizard found in the sanctuary is the Water Leguan, which lives along the banks of the Apies River, forming the western boundary of the sanctuary. These miniature dragons are most proficient swimmers and will plunge into the water at the slightest alarm and there remain hidden for quite considerable periods.



Pyxicephalus adspersus.

PHOTO 5.—African Bullfrog. FOTO 5.—Brulpadda.

As already mentioned, it is extremely unlikely that any snakes will be seen by the casual visitor, so that no purpose will be served by giving a detailed account of those forms which may occur. Of the frogs and toads the only forms likely to be seen are the Common River Frog, which frequents the banks of the Apies River and is a prodigious jumper, and the Common Garden Toad and the Red Toad, which are usually abroad at night but may sometimes be seen in the day during summer rainfall periods.

For the information of those who may be particularly interested a full list of all the reptiles and amphibians, which have been recorded as occurring in the Wonderboom Sanctuary, is as follows:—

LIZARDS.

(1) Common Dwarf Gecko (*Lygodactylus capensis capensis*). To be seen on tree-trunks, rocks and dead brushwood; diurnal, but very shy and elusive. (See photo 1.)

(2) Blinkogie (*Pachydactylus bibronii bibronii*). Gevind tussen rotse of in dooie boomstompe; 'n nagdier wat selde bedags gesien word. Sien foto 6.)

(3) Boomkoggelmander (*Agama atricollis*). Boombewonend en gekenmerk deur die heldergroen of blou-groen kop van die mannetjies. (Sien foto 3.)

(4) Bloukop-klipkoggelmander (*Agama atra*). Kom voor op rotse, slegs op die hoër hange.

(5) Grond- of Vaalkoggelmander (*Agama hispida distanti*). Kleiner en meer stekelrig as die twee voorafgaande soorte. Grondbewonend, gevind tussen struike en fynruigte op die gelyktes. (Sien foto 2.)

(6) Trapsoetjies of Verkleurmannetjie (*Chamaeleo dilepis dilepis*). Gevind op bome en struike; lê tot 50 eiers op 'n keer. Die eiers word in die grond begrawe om uit te broei.

(7) Driestreep-akkedis (*Mabuya capensis*). Beweeg laangsaam, gevind op die grond onder bosse en tussen plantaardige afval.

(8) Klein Gevlekte Akkedis (*Mabuya varia varia*). Gevind tussen rotse, op ou boomstompe, draadpale, ens. Klein en vinnig.

(9) Tweestreep-akkedis (*Mabuya striata*). Baie aanpasbaar, gevind op rotse, bome, mure, ens.

(10) Kortbeen-akkedis (*Riopa sundevallii*). Lewe in blaargrond en ander verrottende plantaardige materiaal; word selde gesien. (Sien foto 7.)

(11) Dwerg-akkedis (*Ablepharus wahlbergii*). Gewoonlik gevind tussen dooie blare, ens., onder bosse en struike. (Sien foto 8.)

(12) Geelkeel-akkedis (*Gerrhosaurus flavigularis flavigularis*). Rots- en grondbewonend; baie sku en skugter.

(13) Gewone Sandveld-akkedis (*Nucras intertexta holubi*). Grondbewonend en vinnig.

(14) Gevlekte Sand-akkedis (*Eremias lineo-ocellata lineo-ocellata*). Grondbewonend en vinnig.

(15) Groot Growweskub-sandakkedis (*Ichnotropis squamulosa*). Grondbewonend, dwarsdeur die sand- en bosveld gevind.

(16) Klein Growweskub-sandakkedis (*Ichnotropis capensis capensis*). Gewoontes soos dié van laasgenoemde.

(17) Wurm-akkedis (*Monopeltis capensis capensis*). Wurmagtig, sonder ledemate, lewe ondergronds.

(18) Waterlikkewaan (*Varanus niloticus*). Hoofsaaklik waterbewonend, word dikwels gesien waar hy langs die oewers van riviere en stroompies in die son lê en bak. Lê sy eiers in miershope. (Sien foto 4.)

(19) Sonkyker (*Cordylus vittifer*). Gevind tussen rotse op die hange van berge of heuwels.

SLANGE.

(1) Wurmslang (*Leptotyphlops scutifrons*). Baie klein, swart en wurmagtig; lewe ondergronds. Skadeloos.

(2) Blinde- of Erdslang (*Typhlops bibronii*). Soos laasgenoemde, maar groter en bruin. Skadeloos.

(3) Waterslang (*Lycodonomorphus rufulus rufulus*). Slegs in of naby water gevind. Skadeloos.

(4) Huisslang (*Boaedon lineatus*). Bruin tot rooi-bruin, met twee ligte strepe aan weerskante van die kop; grondbewonend; lewe hoofsaaklik van rotte, muise en ander klein soogdiere; heeltemal skadeloos. (Sien foto 9.)

(2) Large Rock Gecko (*Pachydactylus bibronii bibronii*). Found among rocks or in dead tree stumps; nocturnal and seldom seen abroad during the day. (See photo 6.)

(3) Tree or Black-necked Agama (*Agama atricollis*). Tree-living and characterised by the bright green to blue-green head in the males. (See photo 3.)

(4) Rock Agama (*Agama atra*). Occurring on rocks only on the higher slopes.

(5) Distant's Spiny Agama (*Agama hispida distanti*). Smaller and more spiny than either of the two foregoing species. Ground-living and found among shrubs and brushwood on the flats. (See photo 2).

(6) Common East African Chameleon (*Chamaeleo dilepis dilepis*). Found on trees and shrubs; lays up to 50 eggs at a time, which are buried in the ground for incubation.

(7) Common Three-striped Skink (*Mabuya capensis*). Slow-moving and found on the ground under bushes and among vegetable debris.

(8) Variegated Skink (*Mabuya varia varia*). Found among rocks, on old tree stumps, wooden fencing poles, etc. Small and quick-moving.

(9) African Striped Skink (*Mabuya striata*). Very adaptable, found on rocks, trees, walls, etc.

(10) Sundeval's Short-legged Skink (*Riopa sundevallii*). Lives in leaf mould and other decaying vegetable matter; seldom seen abroad. (See photo 7.)

(11) Wahlberg's Dwarf Skink (*Ablepharus wahlbergii*). Usually found among dead leaves, etc., under bushes and shrubs. (See photo 8.)

(12) Yellow-throated Lizard (*Gerrhosaurus flavigularis flavigularis*). Rock- and ground-living; very shy and elusive.

(13) Common Sandveld Lizard (*Nucras intertexta holubi*). Ground-living and quick-moving.

(14) Ocellated Ground Lizard (*Eremias lineo-ocellata lineo-ocellata*). Ground-living and quick-moving.

(15) Large Rough-scaled Sand Lizard (*Ichnotropis squamulosa*). Ground-living and found throughout the Sand- and bushveld.

(16) Small Rough-scaled Sand Lizard (*Ichnotropis capensis capensis*). Habits similar to the last-named.

(17) Worm Lizard (*Monopeltis capensis capensis*). Worm-like, without limbs and lives underground.

(18) Water Leguan or Nile Monitor Lizard (*Varanus niloticus*). Largely aquatic, and often seen basking in the sun along stream and river banks; lays eggs in termite hills. (See photo 4.)

(19) Transvaal Girdled Lizard (*Cordylus vittifer*). Found among rocks on hill or mountain slopes.

SNAKES.

(1) Worm or Blind Snake (*Leptotyphlops scutifrons*). Very small, black and worm-like; lives underground. Harmless.

(2) Blind Snake (*Typhlops bibronii*). Similar to last-named but larger and brown in colour. Harmless.

(3) Brown Water Snake (*Lycodonomorphus rufulus rufulus*). Found only in or near water. Harmless.

(4) Brown or Lineated House Snake (*Boaedon lineatus*). Brown to reddish brown, with two pale stripes on either side of head; ground-living; feeds largely on rats, mice and other small mammals; quite harmless. (See photo 9.)

(5) Klein Gevlekte Slang (*Lycophidion capense capense*). Klein en skadeloos.

(6) Vyl- of Driekantige Slang (*Mehelya capensis capensis*). Grys tot grys-bruin of donkergrys; beweeg stadig; leef hoofsaaklik van ander slange. Skadeloos. (Sien foto 10.)

(7) Molslang (*Pseudaspis cana*). Varieer van grys tot bruin of swart; grondbewonend, leef hoofsaaklik van klein soogdiere. Skadeloos.

(8) Groen Waterslang (*Philothamnus natalensis*). Egalige heldergroen; boombewonend en gewoonlik naby water gevind; leef hoofsaaklik van klein paddas. Skadeloos.

(9) Gevlekte Boomslang (*Philothamnus semivariegatus semivariegatus*). Groen, gewoonlik met fyn swart spikkels; boombewonend en skraal gebou; leef hoofsaaklik van klein voëltjies en akkedisse. Skadeloos.

(10) Suid-Afrikaanse Wipneus-slang (*Prosymna sundevallii*). 'n Klein, skadelose soort wat in die grond grawe en 'n spesiaal-aangepaste, opgekrulde, graafagtige snoet vir die doel het.

(11) Eiervreter-slang (*Dasypeltis scaber scaber*). Lyk soos die Nagadder, maar skraler; lewe uitsluitlik van voëleiers; heeltemal skadeloos.

(12) Tierslang (*Telescopus semiannulatus semiannulatus*). Geel tot rooierig en met swart ringe; giftande agter in die bek. Effens giftig.

(13) Rooilip-slang (*Crotaphopeltis hotamboeia hotamboeia*). Grys tot bruin, effekleurig of min of meer gespikkeld; gewoonlik met 'n rooi merk aan weerskante van die kop. Lewe van klein soogdiere en paddas; grondbewonend; giftande agter in die bek. Effens giftig. (Sien foto 11.)

(14) Gewone Skaapsteker (*Trimerorhinus rhombeatus*). Grondbewonend; lewe hoofsaaklik van klein voëltjies, akkedisse en paddas; giftande agter in die bek. Effens giftig.

(15) Sandslang (*Psammophis sibilans sibilans*). Grondbewonend; giftande agter in die bek. Effens giftig. (Sien foto 12.)

(16) Boomslang (*Dispholidus typus*). Twee verskillende kleurvariëteite word gewoonlik gevind, d.i. bruin en groen; boombewonend; lewe hoofsaaklik van klein voëltjies en hul eiers; giftande agter in die bek. Min of meer giftig.

(17) Swartkop-slang (*Aparallactus capensis capensis*). Klein en grondbewonend; dikwels in groot getalle gevind in ou miershope; giftande agter in die bek. Effens giftig.

(18) Egiptiese Kobra of Bosveld-geelslang (*Naja haje haje*). 'n Groot soort wat tot ongeveer 7 voet lank word en wydverspreid dwarsdeur Afrika voorkom behalwe in reënbos- en egte woestyngebiede. Dit is òf egalig bruin tot byna swart van kleur òf voorsien van breë ligte en donker ringe; giftande voor in die bek en baie giftig; eierleggend. (Sien foto 13.)

(19) Swarthals-geelslang of Spuugslang (*Naja nigricollis nigricollis*). Soos die Egiptiese Kobra is dit wydverspreid oor die savannagebiede van tropies en suidelike Afrika; dit is egter meer slank, egalig vaal tot bruin of swart van kleur en in staat om te „spuug", d.w.s. om sy gif tot vyf of ses voet na 'n aanvaller te spuit of te sprei. (Sien foto 14.)

(20) Rinkals (*Hemachatus haemachatus*). Nouverwant aan die egte kobras (*Naja*), maar kan maklik aan die sterk kiele van die skubbe onderskei word en is eier-lewendbarend, d.w.s. dit bring eiers voort wat uitbroei nog vóór hulle gelê word. Soos die Swarthals-geelslang kan dit ook 'n ent „spuug"; betreklik traag in beweging; hou hom dikwels dood as hy bedreig word; bereik 'n lengte van 3½ tot 4 voet en is beperk tot Suid-Afrika, suid van die Limpoporivier.

(5) Cape Wolf- or Spotted-snake (*Lycophidion capense capense*). Small and harmless.

(6) File Snake (*Mehelya capensis capensis*). Grey to greyish-brown or blackish; slow-moving; lives largely on other snakes. Harmless. (See photo 10.)

(7) Mole Snake (*Pseudaspis cana*). Varying from greyish to brown or black; ground-living and preys mainly on small mammals. Harmless.

(8) Green Water Snake (*Philothamnus natalensis*). Uniform bright green; tree-living, and usually found in the vicinity of water; lives mainly on small frogs. Harmless.

(9) Spotted Tree Snake (*Philothamnus semivariegatus semivariegatus*). Green, usually finely spotted with black; tree-living and of slender build; feeds mainly on small birds and lizards. Harmless.

(10) South African Shovel-Snout (*Prosymna sundevallii*). A small harmless species, which burrows in the ground and has a specially adapted, upturned shovel-like snout for the purpose.

(11) Egg-eater Snake (*Dasypeltis scaber scaber*). Similar in appearance, but more slender than the Night Adder; lives exclusively on birds' eggs; quite harmless.

(12) Tiger-Snake (*Telescopus semiannulatus semiannulatus*). Yellow to reddish and banded with black; back-fanged and slightly poisonous.

(13) Herald or Red-lipped Snake (*Crotaphopeltis hotamboeia hotamboeia*). Grey to brown, uniform or spotted in varying degree, usually with a red marking on either side of head. Lives on small mammals and frogs; ground-living; back-fanged and slightly poisonous. (See photo 11.)

(14) Spotted Skaapsteker (*Trimerorhinus rhombeatus*). Ground-living; lives mainly on small birds, lizards and frogs; back-fanged and slightly poisonous.

(15) Hissing Sand Snake (*Psammophis sibilans sibilans*). Ground-living; back-fanged and slightly poisonous. (See photo 12.)

(16) African Tree Snake (*Dispholidus typus*). Usually found in two distinct colour varieties, i.e. brown and green; arboreal and lives mainly on small birds and their eggs; back-fanged and more or less poisonous.

(17) Black-headed Snake (*Aparallactus capensis capensis*). Small and ground-living; often found in large numbers in old termite hills; back-fanged and slightly poisonous.

(18) Egyptian Cobra or Bushveld Cobra (*Naja haje haje*). A large species attaining a length of about 7 feet and widespread throughout Africa, excluding the rain-forest regions and true desert. In colour, it is either a uniform brown to blackish or with broad paler and darker bands; front-fanged and highly poisonous; egg-laying. (See photo 13.)

(19) Black-necked Spitting Cobra (*Naja nigricollis nigricollis*). Like the Egyptian Cobra, this species is widely distributed throughout the savannah areas of tropical and southern Africa; it is, however, more

(21) Nagadder (*Causus rhombeatus*). Beweeg traag en kom gewoonlik net snags te voorskyn; giftande voor in die bek. Baie giftig. (Sien foto 15.)

(22) Pofadder (*Bitis arietans*). Baie traag en swaar gebou; lewe hoofsaaklik van klein soogdiere en paddas; giftande voor in die bek. Baie giftig. (Sien foto 16.)

PADDAS EN SKURWEPADDAS.

(1) Gewone Groen- of Waterpadda (*Rana angolensis*). Gevind in stroompies en langs hul walle.

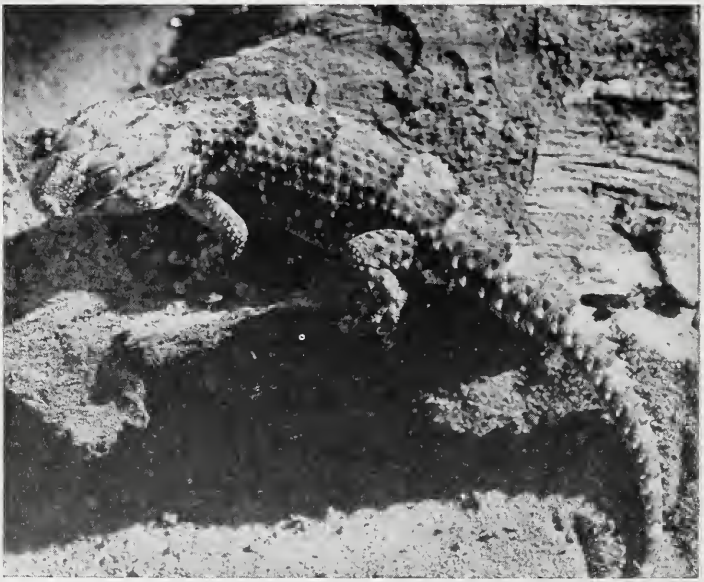
(2) Brulpadda (*Pyxicephalus adspersus*). Ons grootste soort; bring meeste van die jaar in somerslaap deur en kom slegs te voorskyn gedurende reëntydperke, wanneer dit in die water broei. (Sien foto 5.)

(3) Natalse Graspadda (*Phrynobatrachus natalensis*). 'n Klein grondbewonende padda wat in die water broei.

(4) Blaasop of Donderpadda (*Breviceps adspersus*). Klein en met kort ledemate; spring nie en kan slegs kruip; broei in gate in die grond, weg van die water af.

(5) Gewone Skurwepadda (*Bufo regularis regularis*). Grondbewonend; maar gaan in die water in om te broei.

(6) Rooi- of Reënpadda (*Bufo carens*). Kom met laasgenoemde ooreen in gewoontes.



Pachydactylus bibronii.

FOTO 6.—Blinkogie

PHOTO 6.—Large Rock Gecko.

slender, a uniform grey to brown or black in colour and capable of "spitting", i.e. ejecting or spraying its venom to a distance of five or six feet at an attacker. (See photo 14.)

(20) Rinkals (*Hemachatus haemachatus*). Closely related to the true cobras (*Naja*), but readily distinguished by having the body scales strongly keeled and in being ovo-viviparous, i.e. producing eggs that hatch before they are laid. Like the Black-necked Spitting Cobra, it can also eject its poison for some distance; comparatively sluggish in movement; readily shams death when frightened; attains a length of 3½ to 4 feet and is confined to South Africa, south of the Limpopo River.

(21) Night Adder (*Causus rhombeatus*). Sluggish in movement and usually only abroad at night; front-fanged and highly poisonous. (See photo 15.)

(22) Puff Adder (*Bitis arietans*). Very sluggish and heavy build; lives largely on small mammals and frogs; front-fanged and highly poisonous. (See photo 16.)

FROGS AND TOADS.

(1) Common River Frog (*Rana angolensis*). Found in and along the banks of streams.

(2) African Bullfrog (*Pyxicephalus adspersus*). Our largest species; spends most of the year aestivating under ground, emerging only during rainy periods, when it spawns in water.

(3) Natal Grass Frog (*Phrynobatrachus natalensis*). A small ground-living frog, which breeds in water.

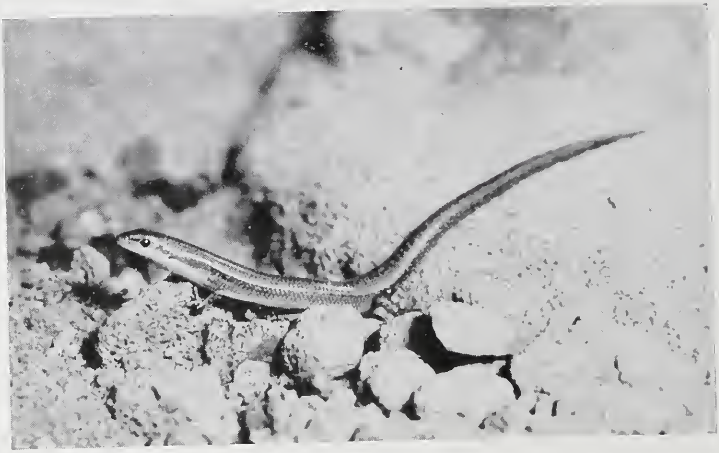
(4) Blaasop or Donderpadda (*Breviceps adspersus*). Small and short-legged; does not hop, but can only crawl; breeds in holes in the ground away from water.

(5) Common Garden or Leopard Toad (*Bufo regularis regularis*). Ground-living, but going into water to spawn.

(6) Red Toad (*Bufo carens*). Similar in habits to the last-named.

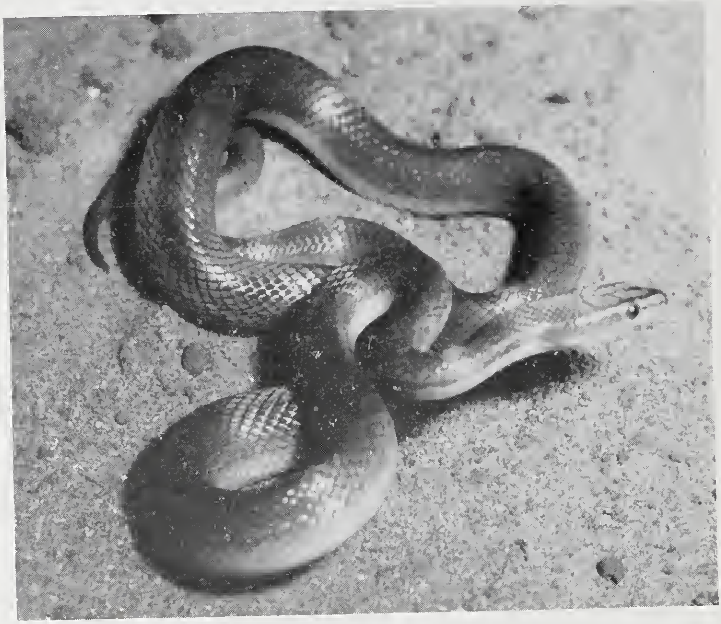
Riopa sundevallii.

PHOTO 7.—Sundeval's Short-legged Skink. FOTO 7.—Kortbeen-akkedis.



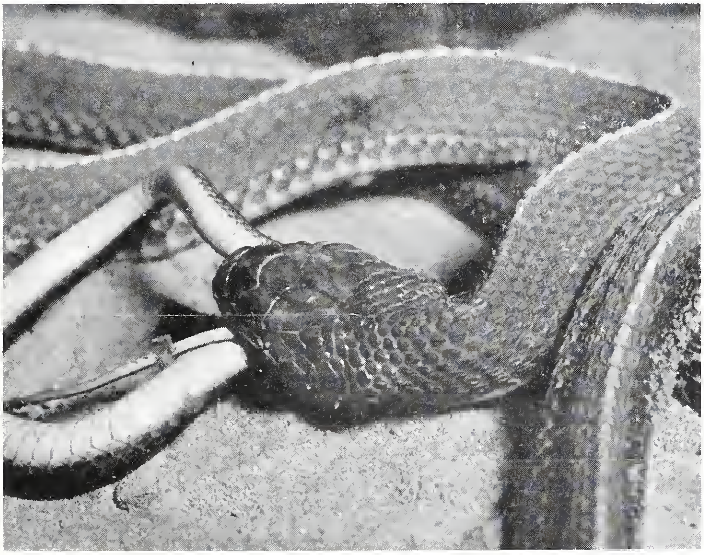
Ablepharus wahlbergii.

FOTO 8.—Dwerg-akkedis. PHOTO 8.—Wahlberg's Dwarf Skink.



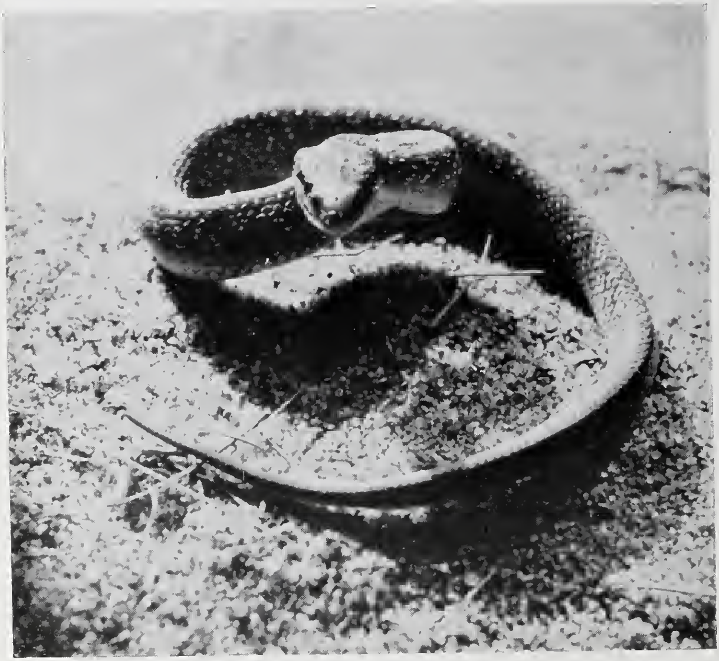
Boaedon lineatus.

FOTO 9.—Huisslang. PHOTO 9.—Brown House Snake.



Mehelya capensis.
PHOTO 10.—File Snake swallowing another snake.

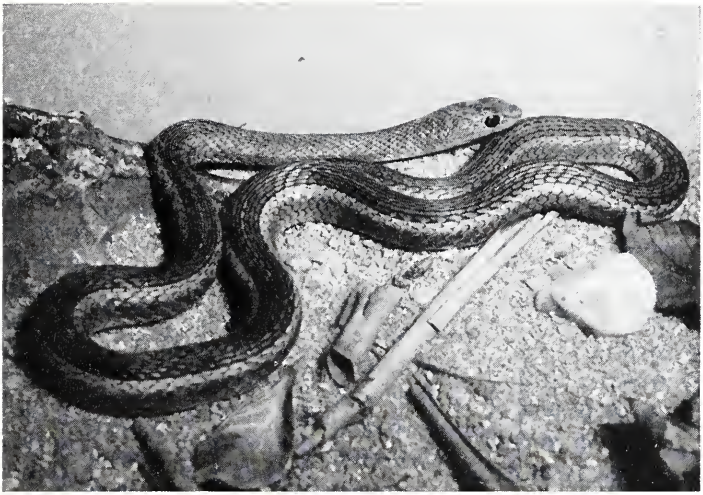
FOTO 10.—Vylslang besig om 'n ander slang in te sluk.



Crotaphopeltis hotamboeia.

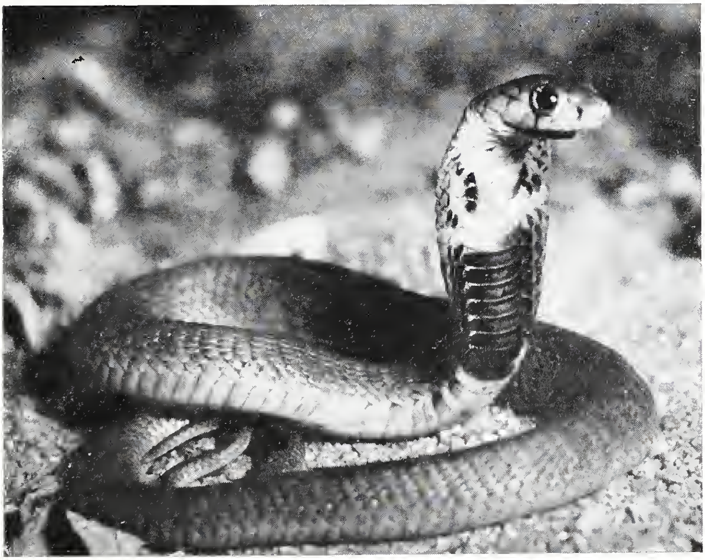
Foto 11.—Rooilip-slang in dreigende houding.

Photo 11.—Red-lipped Snake in threatening attitude.



Psammophis sibilans.

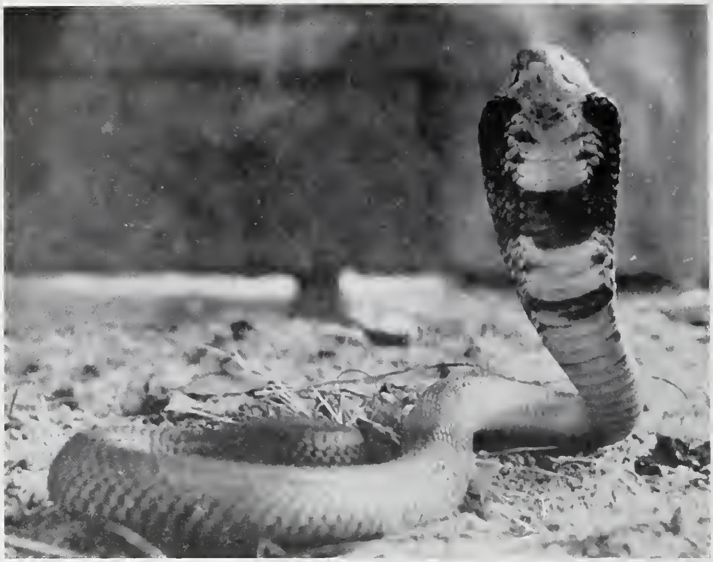
Photo 12.—Hissing Sand Snake. Foto 12.—Sandslang.



Naja haje.

Photo 13.—Egyptian Cobra in threatening attitude.

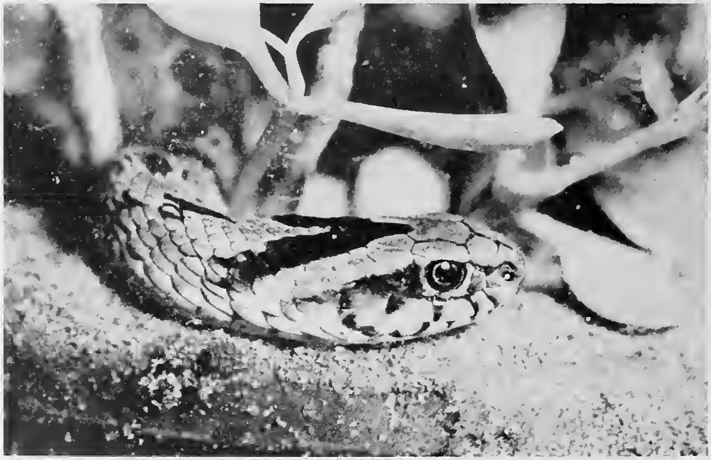
Foto 13.—Bosveld-geelslang in dreigende houding.



Naja nigricollis.

Foto 14.—Swarthals-geelslang in dreigende houding.

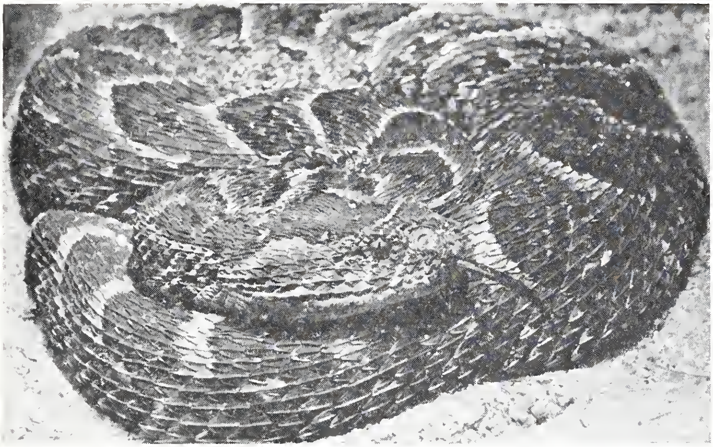
Photo 14.—Black-necked Spitting Cobra in threatening attitude.



Causus rhombeatus.

Foto 15.—Nagadder met kenmerkende V-vormige merk op kop.

Photo 15.—Night Adder with characteristic V-shaped marking on head.



Bitis arietans.

Foto 16.—Pofadder.

Photo 16.—Puff Adder.

DIE VOËLS VAN DIE WONDERBOOM-NATUURRESERVAAT

deur Dr. Austin Roberts

Met Byvoegings deur O. P. M. Prozesky.

(Die nommers het betrekking op *The Birds of South Africa,* deur dr. Austin Roberts.)

DAAR is min plekke in die omgewing van Pretoria waar so 'n groot verskeidenheid van voëls in hul natuurlike omgewing bestudeer kan word as in die Wonderboom-reservaat. Die rede hiervoor is die reusagtige Wonderboom self wat klein bessieagtige vye gedurende die grootste gedeelte van die jaar dra, en die teenwoordigheid van nog vier ander wildevysoorte. Een hiervan dra 'n menigte soet vygies gedurende die laat somer. Daarbenewens is daar 'n groot aantal wildevrugte en bessies.

Die ligging van die reservaat is van so 'n aard dat daar 'n groot verskeidenheid van plantegroei aangetref word. Daar is 'n klein gelykte naby die boom self, dan 'n taamlik digte bos en 'n menigte soorte groot bome aan die voet van die Magaliesberg wat al yler teen die hang van die berg word, hoe nader 'n mens aan die kruin kom. Hier word boomsoorte aangetref wat nie aan die voet van die berg groei nie. Die hele suidelike hang van die berg is met gras bedek, met hier en daar 'n klompie verspreide doringbome. Ons vind ook steil kranse met 'n groot grot en diep skeure by die poort wat 'n ideale plek vir sekere voëlsoorte is.

Hagedas (84) Hadedah Ibis.

THE BIRDS OF THE WONDERBOOM NATURE RESERVE

by Dr. Austin Roberts

With Additions by O. P. M. Prozesky.

(The numbers refer to *The Birds of South Africa,* by Dr. Austin Roberts.)

THERE are few places in the neighbourhood of Pretoria that can offer for study in Nature such a wide variety of birds as the Wonderboom Sanctuary. The reason for this is the presence of the giant Wonderboom which bears berrylike figs for the greater part of the year; the presence of four other species of wild figs (one of which bears an abundance of small sweet fruits in the late summer) and numerous other wild berries and fruits. The terrain is such that a wide variety of veld and vegetation is included in the sanctuary: a small flat area near the tree, then fairly dense bush and large trees in considerable variety at the foot of the Magaliesberg slope, opening out at higher levels until the summit is reached, where some species occur that are not seen lower down.

The whole southern slope is covered with grass, with a few scattered thorn trees, and then the precipitous rocks overlooking the poort, where there is a large cave and crannies that are specially suited to some species.

The Apies River was at one time the haunt of many wading, swimming and river perching birds, but these have mostly fled with the development of the area. It is hoped that, with the proposed inclusion of portion of the river in the sanctuary, many of these species will return to their old haunts. However, some aquatic and river birds still remain in or visit the area, such as the Hamerkop (72) which recently had a nest in the branches of the Wonderboom itself.

It has been inevitable, too, that some of the large birds of prey, such as vultures and eagles, which formerly haunted the precipices and mountain top, have all but deserted the area, as every hand has been against them. But perhaps when the area is properly supervised and strict protection enforced, these birds will show themselves more frequently than they do now. The small Wahlberg's Eagle (137) formerly nested near the Wonderboom and the Small Wonderboom and still does so on the Townlands west of the city. It is surprising how soon birds respond and settle when strict protection is enforced and encouragement given, as many people can testify who have erected bird baths and feeding trays in the towns and cities. These might well be established in the Wonderboom area, and if the waterfront could be planted with reedbeds, and marshy places with coarse grasses and bulrushes, these would bring back many of the birds formerly found there. The excavation of sand-pits would afford nesting places for bee-eaters, kingfishers, common Starlings (746), two species of Sandmartins (509 and 510) and perhaps even the Horus Swift (384).

The list of birds actually known to occur or to have occurred in the Wonderboom area is a long one, but contenting ourselves with those that are most likely to be seen by the interested bird-lover, a great variety still remains and may be briefly mentioned.

Die Apiesrivier was in die verlede die verblyfplek van 'n menigte watervoëls en rietbewoners, maar die meeste van hulle het met die ontwikkeling van die omgewing gevlug. Met die voorgestelde uitbreiding van die reservaat, wat 'n deel van die rivier sal insluit, bestaan die vooruitsig dat baie van hierdie voëls sal terugkeer na hul ou tuiste. Nietemin is daar nog van hierdie voëls wat die reservaat af-en-toe besoek en wat selfs daar woonagtig is. 'n Hamerkop (72) het onlangs nog sy nes in die Wonderboom self gemaak.

Dit was onvermydelik dat die grotere soorte roofvoëls, soos aasvoëls en arende, wat vanmelewe die berg en kranse bewoon het, ook moes vlug vir die beskawing wat hulle nie goedgesind is nie. Maar dit is te hope dat met strenge toesig in die reservaat en beskerming van hierdie voëls, hulle weer sal terugkeer na hul ou verblyfplekke. Die Bruin Arend (137) het vroeër naby die Wonderboom en die Klein Wonderboom nes gemaak, en maak vandag nog nes in die afgeleë westelike gedeelte van die stadsgebied.

Dit is verbasend hoe voëls selfs in dorpe en stede reageer as hulle beskerm en aangemoedig word, soos deur baie persone met voëlbaddens en voerplekke betuig word. Sulke plekke kan maklik in die reservaat aangebring word. Die rivier kan met riete en die vleierige grond met palmiet en geskikte grassoorte beplant word. Dit sal baie voëls laat terugkeer na die reservaat. Na uitgrawing sou sandwalle plek vir nesmaak verskaf aan Byevreters, Visvangers, die Witgatspreeu (746) en twee soorte Oewerswawel (509, 510), en selfs miskien ook vir die Horus-windswawel (384).

Bont-visvanger (394) Pied Kingfisher.

Die lys van voëls wat werklik in die reservaat aangetref word, of vroeër aangetref is, is 'n lang een, maar selfs as ons net die voëlsoorte

Bateleur. (151) Berghaan

As already stated, most of the large birds of prey, the Cape Vulture, (106) and Black Eagle (133), are now seldom seen, but the Cape Kestrel (125), Large Kestrel (122) and the Black-shouldered Kite (130) are still to be seen perched on the taller trees, and in the denser growths the Little Banded (161) and the Gabar Goshawks (162).

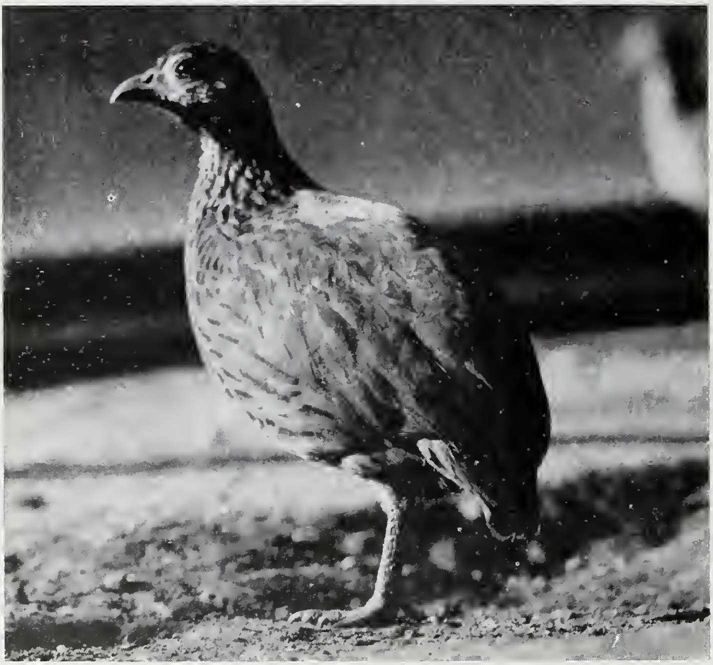
The owls are naturally not so readily seen on account of their nocturnal habits, but the Barn (359), White-faced (364) and the Spotted Eagle Owls (368) still occur in the area. The same may be said of the nocturnal nightjars, two species of which are common in summer but migrate northwards for the winter, namely, the Rufous-cheeked Nightjar (372), which nests in the area, and the European Nightjar (371) which does not breed in South Africa. The Freckled Nightjar (374) is resident and occurs amongst the rocks of the mountain.

Of ground-frequenting birds, the Crowned Guineafowl (192) occurs in the bushy places, the Redwing Partridge (178) and the Coqui (173) in the more open ground on the top and the southern face of the mountain,

vermeld wat die voëlliefhebber waarskynlik sal sien, vind ons nog 'n groot aantal. Hulle word kortliks hieronder bespreek.

Soos hierbo vermeld, word die grotere roofvoëls, onder andere die Kaapse Aasvoël (106) en die Witkruis-arend (133), nou maar selde gesien, maar die Klein-rooivalkie (125), Groot-rooivalk (122) en die Blouvalkie (130) word nog in die toppe van die groot bome gesien, op uitkyk na hul prooi. In die digte bos vind ons die Gebande Sperwer (161) en die Klein-blouvalkie (162). Die uile, wat meesal in die nag rondvlieg, word nie so dikwels raakgesien nie, maar die volgende uilsoorte kom daar voor: die Nonnetjie-uil (359), die Witwang-ooruiltjie (364) en die Gevlekte-ooruil (368).

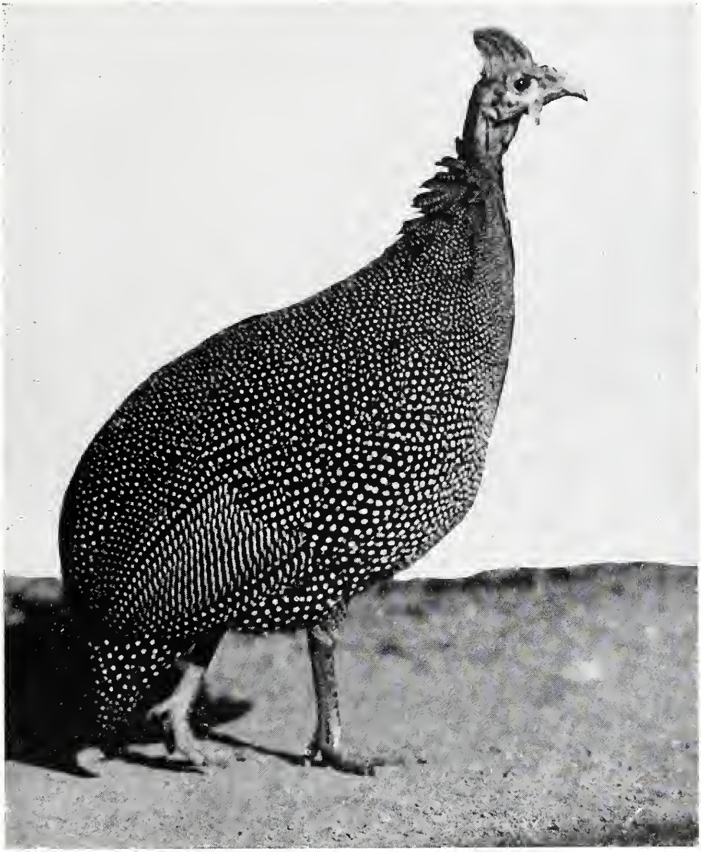
Dieselfde geld ook vir die naguiltjies, waarvan twee soorte dikwels gedurende die somer aangetref word, maar wat vir die wintermaande wegtrek na die Noorde. Hulle is die Rooiwang-naguiltjie (372), wat daar broei, en die Europese Naguiltjie (371) wat nie in Suid-Afrika broei nie. Die Donker-naguiltjie (374) trek nie en word tussen die rotse op die berg gevind.



Bosveldfisant (185) Swainson's Francolin.

Die Gewone Tarentaal (192) vind ons in die bosse teen die hang en die Rooivlerkpatrys (178) en die Swempi-patrys (173) word op die oop veld teen die suidelike helling van die berg aangetref. Die Bosveldfisant (185) en die Natalfisant (183) is voorheen dikwels naby die Wonderboom self en langs die rivier aangetref en dit is van die grootste belang dat hulle weer ingevoer en beskerm moet word.

while the Swainson's (185) and Natal Francolins (183) formerly occurred commonly in the bush near the Wonderboom and along the river, so that their introduction and protection would be profitable.



Crowned Guineafowl. (192) Gewone Tarentaal

Of the smaller terrestrial birds there are several larks and pipits still to be seen, namely the Sabota Lark (460) in the thorn bush at the foot of the slope and the Eastern Long-billed Lark (478) on the summit of the mountain. The Bushveld Tree Pipit (699) occurs on the same ground as the Sabota Lark; the Nicholson's (693), Plain-backed (694) and Large Striped Pipits (696) on the mountain slopes and summit. In the plains the Tawny Pipit (692) and the Cape Longclaw (703) occasionally put in an appearance from the neighbouring less disturbed ground. The Cape Wagtail (686) is common along the river and comes to the artificial

Daar is nog 'n hele aantal vlakvoëltjies te sien. Die Sabotalewerkie (460) lewe tussen die doringbome aan die voet van die berg en die Oostelike Langbeklewerkie (478) bo-op die berg. Die Bosveldkoester (699) tref ons ook tussen die doringbome aan, terwyl die Nicholsonse Koester (693), die Donkerkoester (694) en die Groot Gestreeptekoester (696) teen die berg en op die kruin voorkom.

Op die oop veld maak die Gewone-koester (692) en die Rooiborskalkoentjie (703) nou en dan nog hul verskyning. Die gewone Kwikstertjie (686) is volop langs die rivier en kom selfs na die gemaakte dammetjie naby die boom. Die Gewone-dikkop (275) vind bedags skuiling in die digte bos en struike. Die Europese Koester („Boompeiper") (698) is 'n seldsame kuiergas gedurende die somermaande.

Kwêvoël. (339) Grey Lourie.

Van die duifsoorte is die Tortelduif (316) en die Lemoenduif (317) baie algemeen. Die Namakwaduifie (318) kom dikwels na die gelykte naby die boom. Die Bosduif (311) bewoon die steil kranse naby die grot.

pool near the Wonderboom. The Cape Dikkop (275) finds shelter during daylight in the bush and wooded slopes. The European Tree Pipit (698) is a rare summer visitor.

Natal Francolin. (183) Natalfisant

Of the Pigeon tribe, the Cape Turtle (316) and Laughing Doves (317) are common. The Namaqua Dove (318) often visits the area of flat ground. The Rock Pigeon (311) haunts the precipices near the cave, and the Greenspotted Dove (321) and Red-eyed Turtle Dove (314) sometimes come to the sheltered bush. Sometimes the Grey Lourie (339), the Grey (424) and the Yellow-billed Hornbills (426), all so common in the bushveld, come to the Sanctuary but the *Wanderlust* takes them away again after a brief spell.

The African Hoopoe (418) is often to be seen near the Wonderboom and in the bush above may be heard the cackling notes of the Scimitar-billed (421) and Red-billed Hoopoes (419). To see them it may be necessary to follow up their cries.

Sometimes in midsummer the European Roller (412) may be seen perched on the top of tall trees. Of the cuckoos, all of which are migratory and only to be heard and seen in summer, though all but the

Grys-neushoringvoël (424) Grey Hornbill.

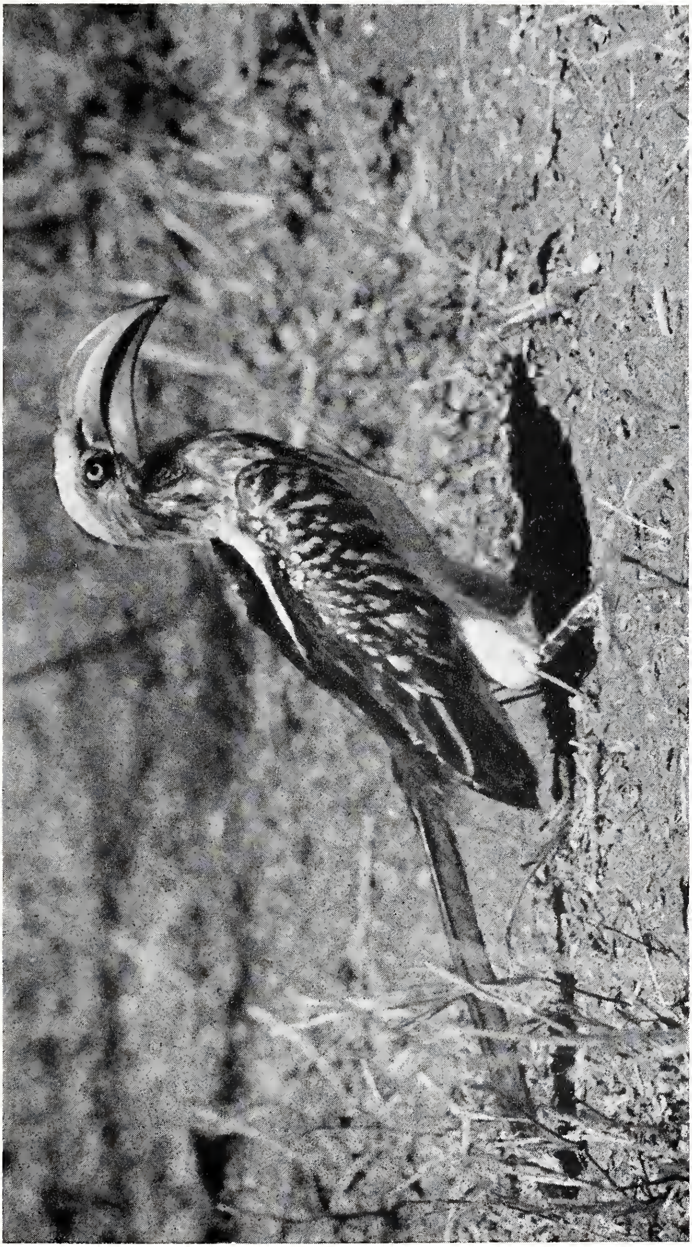
Die Groenvlek-duifie (321) en die Groot Ringduif (314) kom nou en dan na die digte bos. Die Kwêvoël (339), die Grys-neushoringvoël (424) en die Geelbek-neushoringvoël (426), wat so dikwels in die bosveld gesien word, kom na die reservaat, maar die *Wanderlust* neem hulle na 'n kort verblyf weer weg.

Die Afrikaanse Hop (418) word dikwels naby die boom gesien en die lawaaimakers, die Kakelaar (419) en die Swartbek-kakelaar (421), word in die grotere bome gehoor, en kan dikwels gesien word deur hulle versigtig te bekruip.

Partykeer word die Europese Troupand (412) gedurende die warmste somermaande op die toppe van die hoogste bome gesien. Die Koekoeksoorte, waarvan almal trekvoëls is, word net in die somer gehoor en gesien. Almal behalwe die Europese soorte broei hier. As hulle sorgvuldig gesoek word, word veral die Diedrikkie (352), die Meidjie (351) en Piet-my-vrou (343) aangetref. Die luidrugtige Kuifkopsoorte is die Swart- (349), die Gewone- (348) en die Gestreepte-nuwejaarsvoël (347) en die Groot Gevlektekoekoek (346). Af en toe word ook die Swart-koekoek (344), die Afrikaanse Koekoek (341) en die Europese Koekoek (340) in die reservaat gevind .

Die parasitiese Groot- (440) en Klein-heuningwysers (442) word gereëld gesien en die Skerpbekheuningvoël (443) maak ook soms sy verskyning. Die Gestreepte Visvanger (403) het al in 'n ou spegtnes naby die boom sy nes gemaak. Die Bruinkop-visvanger (402) het ook sy nes in 'n gat in 'n wal by dié reservaat. Albei soorte leef van insekte wat hulle op die grond tussen doringbome vind.

In die lug kan ons oplet hoe die Swart- (380), Grootste- (386), Witkruis- (383) en Indiese Windswawels (385) rondsweef. Die twee laasgenoemdes maak hul neste in die omgewing van die reservaat. Die volgende soorte swaweltjies broei ook in of naby die reservaat: die Groot Streepbors- (502), die Klein Streepbors- (503), die Rooibors- (501),



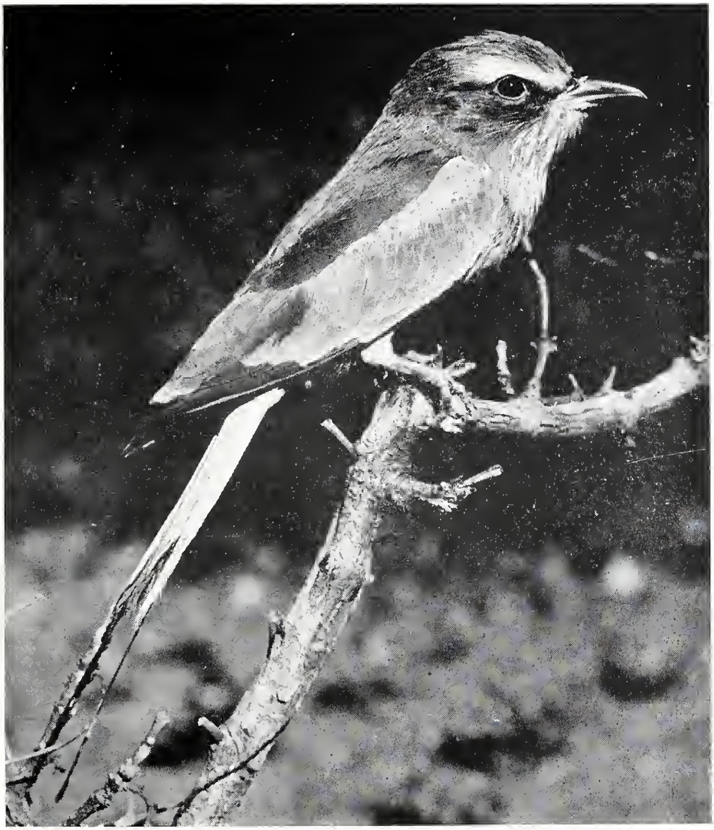
Yellow-billed Hornbill. (426) Geelbek-neushoringvoël

Afrikaanse Hop. (418) African Hoopoe.

die Witkeel- (495), die Familie- (504), die Krans- (506), die Kaapse- (509) en die Gebande-oewerswawel (510). Gedurende die somermaande kan die Europese Swawel (493), as insekte volop is, in groot getalle opgemerk word. Ons sien hulle gewoonlik sit op die telegraafdrade, wat deur die groot massa voëls eintlik afsak. Die Europese Huisswawel (507), die Gryskruis- (499) en die Pêrelbors-swaweltjie (498) is maar seldsame besoekers.

Voëls wat maklik raakgesien word en wat gewoonlik nie sku is nie, is die vrugtevreters. Die Rooiwang-muisvoël (392), die Tiptol (545), die Kuifkop- (439), die Rooikop- (431), die Bont Houtkapper (432) en die Goudkop-tinker (437) kan gesien word of deur hul onmiskenbare geluide opgespoor word. Die Klein Glansspreeu (737) is volop maar die Groot Glansspreeu (743) is baie skaars. Die pragtige Witborsspreeu-mannetjie (736) is baie kenbaar gedurende die somermaande wanneer hulle in gate in bome naby die boom broei. Die Witgatspreeu (746) vind

European species breed here, the most commonly heard and seen—if looked for—are the Diedrikkie (352), Klaas's (351) and Red-chested Cuckoos (343). The noisy crested species are the Black Crested (349), the Jacobin (348), the Striped (347) and the Great Spotted Cuckoos (346) and less frequently the Black (344), African (341) and European (340) true Cuckoos are observed.



Lilac-breasted Roller. (413) Gewone Troupand.

The parasitic Greater (440) and Lesser Honeyguides (442) are not uncommon and the rover Sharp-billed Honeyguide (443) is also present. The Striped Kingfisher (403) has been known to nest in a woodpecker nest near the Wonderboom, and the Brown-hooded Kingfisher (402) to nest in banks nearby. Both species occur in the savannah types of bush.

Looking for birds overhead, the Black (380), Great (386), White-rumped (383) and Indian Swifts (385), the last two of which breed here, may be seen sailing about, and also swallows, the following species of

ons in die oop veld en die Lelspreeu (735) word ook in sy winterskleed bespeur. Die Swartkop- (521) en die Europese Wielewaal (519) is gewoonlik net gaste, maar word nogtans dikwels gesien. Die Groen Glasogie (778) is volop dwarsdeur die jaar en gedurende die somer is die Tuinfluiter (595) en die Hofsanger (599)—albei gaste uit Europa—in groot getalle teenwoordig.

Die spegte word verteenwoordig deur die Kardinaal (450), die Goudstert- (447), die Bennetse- (446) en die Namakwaspegt (451), maar deur hul rustelose geaardheid word hulle nie gereëld gesien nie. Hierdie voëls kan meesal herken word deur hul gekap teen droë stamme en takke of selfs teen droë peule, en partykeer deur hul skelle geroep. Dikwels bemerk ons 'n aantal insekvretende voëls saam met die spegte. Hulle vorm wat bekend staan as 'n „ voëlgeselskap " of 'n „ voëlfamilie " wat saam van boom tot boom wei. So 'n geselskap kan bestaan uit die Swartmees (527), die Transvaalse Piettjoutjou (526), die Kapokvoëltjie (530), die Sundevallse- (602), die Bruinkeel- (601) en die Geelbuikbossanger (600), die Stompstertjie (621) en die Mikstertbyvanger (517). Hierdie voëlsoorte word nie noodwendig net in 'n voëlgeselskap gesien nie. Die Gewone Katlagter (533) en die Witkatlagter (536) kom nogal dikwels in groepe na die bome naby die Wonderboom. Nog 'n voël wat dikwels gehoor word, is die Tjeriktik (658), 'n soort vlieëvanger.

Van die voëls met minder treffende kleure is die Neddikkie (637) in die struikgewas aan die voet van die berg taamlik algemeen. Die Luie- (648) en die Gewone Veldtinktinkie (629) kom teen die hange van die berg voor, terwyl die Vleitinktinkie (646) by die rivier gevind word. In die bosse teen die steil kranse vind ons die Kleinjantjie (622) wat donkergrys van bo is met 'n wit-gelerige bors en buik, 'n swart keelband en waarvan die buitenste stertvere wit is. 'n Ander voëltjie wat maklik met die Kleinjantjie verwar kan word, is die Swartbos Langsterttinktinkie (650). Al verskil tussen die twee is dat die tinktinkie se stertvere almal dieselfde ligbruin kleur het. Hy bewoon die doringagtige struike aan die voet van die berg. Nog 'n tinktinkie wat ons in dieselfde gebied aantref, is die Bruinsy Langstert (649) wat nie 'n swart borsband het nie.

Op die berg vind ons die Berg-tapuit (564); die mannetjie is swartbont en die wyfie meer 'n dowwe bruin met wit. Die Dassievoël (573) tref ons in die poort aan. Voorheen is die Kaapse Klipwagter (559) ook op die berg gesien.

Laer teen die hang af vind die Spekvreter (570) sy tuiste, en op die oop veld die Bontrokkie (576). Janfrederik (581) woon langs die rivier, en die Witkeel-janfrederik (582) in die digte bos. Die Wipstert (586) word in die struikagtige gebiede gevind. Die Gevlekte Lyster (557) wei soms op die grond naby die boom, waar hy vinnig hardloop, skielik gaan staan, sy lyf regop ruk en vinnig wegvlieg as hy verskrik word. In die grotere bome en ook op die grond tref ons twee ander lystersoorte aan, nl. die Rooibek- (552) en die Namakwa-lyster (555) wat albei in die reservaat nesmaak.

Die vlieëvangers word verteenwoordig deur 'n groep baie bekende voëls, soos bv. die Fiskaal-vlieëvanger (665) wat gewoonlik op die drade wat om die boom gespan is, of die lae takke van bome, sit. Die Marico Vlieëvanger (661) word in die plaat doringbome gevind en die Swart Vlieëvanger (664) hoër op tussen die bome. Gedurende die somermaande is die Europese Vlieëvanger (654) nie onbekend nie. Die Witsy-bontrokkie (673) word sekerlik die meeste van al hierdie vlieëvangers gesien en gehoor; die mannetjie met sy swart en die wyfie met haar bruin borsband. Die

which nest in or near the sanctuary: The Large (502) and Lesser Striped (503), the Red-breasted (501), the White-throated (495) and the Cliff Swallows (504), the Rock Martin (506), the Cape Sandmartin (509) and the Banded Sandmartin (510). In summer the European Swallow (493)—which breeds in Europe—comes in great numbers when insects are plentiful, resting upon the telegraph wires in such numbers as to make the wires sag with their weight. The House Martin (507) and the Grey-rumped (499) and Pearl-breasted Swallows (498) are rare visitors.

The most easily seen, and usually not very shy, birds are the fruit-eaters. The Red-faced Mousebird (392), the Toppie (545) and the Crested (439), Black-collared (431), Pied (432) and Exton's Tinker Barbets (437) are to be seen and usually traced by their distinctive call notes. The Cape Glossy Starling (737) is very common; Burchell's Glossy Starling (743) not so common, while the beautiful male of the plum-coloured Starling (736), which nests there, cannot fail to attract attention in the summer months. The Pied Starling (746) is common in more open ground and the Wattled Starling (735) in non-breeding dress is a frequent visitor at any time. The Black-headed (521) and the European Golden Orioles (519) usually come as visitors only, but not infrequently. The Green White-eye (778) is common throughout the year, and in summer the Garden Warbler (595) and the Willow Wren (599) are not uncommon visitors from Europe.

The Woodpeckers are represented by the common Cardinal (450) while the Golden-tailed (447), Bennett's (446) and Namaqua Woodpeckers (451) are known to occur in the area, but are restless and appear irregularly. These may be recognised by their rapping on the stems of dry branches, or even pods, and sometimes by their call notes. Often associated with the Woodpeckers are family or bird parties of other insectivorous birds, which move along together from tree to tree. These may comprise the Black (527) and the Ashy Tits (526), the tiny Penduline Tit (530), the Dusky-faced (602), the Magaliesberg (601) and the Yellow-bellied Bush Warblers (600), the Krombek (621) and the Fork-tailed Drongo (517). These species may, of course, also be seen separately at other times. The noisy Jardine's (533) and Pied Babblers (536) not infrequently come to the bush near the tree, usually in small parties. Another bird frequently heard in the trees and bush is the Tit Babbler (658), a sort of Flycatcher.

Of the plainly coloured birds, the Neddicky (637) is not uncommon in the scrub of the flat area and the Lazy (648) and Common Fantail Warblers (629) occur on the mountain slopes, while the Le Vaillant's Grass Warbler (646) occurs along the river.

In the precipitous places of the poort and bush around them occurs the Bar-throated Apalis (622), which is dark-grey above with white outer tail-feathers, white to yellowish underparts and a black bar across the lower throat. Another bird that might be mistaken for this one is the Black-chested Prinia (650) which differs in being lighter coloured above and having the tail-feathers uniformly light coloured. Another Prinia occurring here is the Tawny-flanked (649), which lacks the black chestband.

On the mountain, the male in black and white and the female in a duller brown, the Mountain Chat (564) is sure to be observed. The Mocking Chat (573) is to be seen in the poort. Formerly the Cape Rock

Gryskeel Paradysvlieëvanger (683) met sy lang rooi stert maak gedurende die somer sy nes in die Wonderboom self waar sy strelende liedjie dikwels gehoor kan word. In die groot bome flits 'n voëltjie wat maar min gesien kan word, vinnig heen en weer; dis die fraai klein Feëvlieëvanger (678).

Bokmakierie (722) Backbackiri.

Die laksmanne word natuurlik verteenwoordig deur die alombekende Janfiskaal (707) en die Bokmakierie (722) met sy duetgeroep, op die laagliggende gedeeltes. In die somer is 'n bekende gas die Rooiruglaksman (708) en 'n seldsame een die Europese Gryslaksman (706), wat albei tussen die doringbome aangetref word. In die digte bos is daar twee soorte rooivlerk-laksmanne, die Swartkroon- (715) en die Klein Rooivlerklaksman (714) met hul bekende gefluit wat gedurig gehoor word. Tussen die doringbome woon ook die Bontrok-laksman (731) met sy kenmerkende gefluit. Die Rooibors-kokkewiet (711) en die Withelm-laksman (727), laasgenoemde altyd in klein groepies, bring ook so af en toe van die bosveld 'n vlugtige besoek aan die reservaat. Die Sneeubal- (712) en die Kokkewiet (709) vind ons onderskeidelik in die groter bome en digte bos van die omgewing.

As die kafferbome in die lente blom, lok hulle vier of vyf soorte suikerbekkies, nl. die Swart- (772), die Marico- (755), Jangroentjie (751) en die Witbors-suikerbekkie (763), en tot 'n mindere mate die Groot Rooibors-suikerbekkie (758). Baie glasogies kom ook na hierdie bloeisels. Hierdie voëlsoorte kom ook na die aalwyn- en die voëlent- (Loranthus) bloeisels maar nie in so 'n verskeidenheid en groot getalle nie.

Van die wewers is die neste van die Swartkeel-geelvink (803) baie opvallend. Die neste hang gewoonlik aan takke oor water of aan riete

Thrush (559) was also to be seen. Lower down the mountain occurs the Familiar Chat (570) and on the flats the Stone Chat (576). The Cape Robin (581) occurs along the river; the White-throated Robin (582) has been observed in the bush, and the Kalahari Scrub Robin (586) occurs in the thornscrub of the flats. The Ground-scraper Thrush (557) may sometimes be seen on the ground near the Wonderboom, running along and halting abruptly and jerking itself upright in a very characteristic way, and flying off suddenly if alarmed. In the large trees, and sometimes hopping on the ground, two other thrushes may be seen; the Kurrichaine (552) and the Cabanis (555), both of which breed in the sanctuary.

Grey-throated Paradise Flycatchers. (683) Gryskeel Paradysvlieëvangers

Flycatchers are represented by some very common ones. The Fiscal Flycatcher (665), for example, perching on the wires around the Wonderboom, or on the lower branches of trees nearby. The Marico Flycatcher (661) occurs on and under the thorn trees of the flat area, and the Black Flycatcher (664) amongst the trees. In summer the European Spotted Flycatcher (654) is not uncommon. The one most heard and seen, is the White-flanked Batis (673). The male has a black band on the breast and the female a reddish one. In summer the Grey-throated Paradise Flycatcher (683), with its long reddish tail, nests in the Wonderboom and utters a warbling and not unpleasant note. Flitting rapidly about in the larger trees is a rarer and not often noticed bird, the tiny Fairy Flycatcher (678).

Langstert-laksman. (724) Magpie Shrike.

langs die rivier. 'n Wewer wat maklik met die bogenoemde verwar kan word, is die Cabanisse-wewer (792). Sy nes het 'n lang tuit en sy pote is blougrys in teenstelling met die bruinerige pote van eersgenoemde. In sekere plekke maak hulle albei in dieselfde boom nes. Die Kaapse Wewer (799) het vroeër ook langs die rivier geboer, maar het vertrek na die meer afgesonderde dele van die rivier. Rooibekvinke (805) maak ook hul verskyning in groot swerms maar nie in hul somerdrag nie.

Die reservaat is die tuiste van vier soorte mossies: Die Kaapse- (786), die Groot- (785), die Gryskop- (787) en die Geelvlekmossie (788). Hulle broei almal in daardie omgewing. Die kanaries wat aangetref word, is die Geeloog- (859) en die Bergkanarie (860). Hulle is albei voortreflike sangers en word gewoonlik in klein groepies gesien. Die Streepkopsysie (867) is algemeen en broei in die reservaat. Die Baardmannetjie (789) en die Rooikopmossie (820) kom ook na die plaat doringbome waar die Rooirug-geelstreepkoppie (874) ook aangetref word. Op die berg is die Kaapse Streepkoppie (873) en die Klipmossie (872) volop en die Vaalstreepkoppie (871) word op sekere tye gesien, maar bly 'n rustelose swerwer.

Vroeër is sysies in groot getalle in die reservaat gesien, maar is amper geheel-en-al uitgevang. Hulle sal sonder twyfel weer hul verskyning maak indien daar streng toesig oor die reservaat gehou word. Onder hulle sorteer die Melbavink (830), die Kaapse- (833), Klein- (837) en Jamesonse robbins (835), die Rooiassie (838), die Blou- (839) en die Koning-blousysie (840), die Swartwang-rooibekkie (841) en die Gewone Rooibekkie (843). Dit geld ook vir die Hiets (846) die Pylstert (847), die Paradysvink (852), die Swart- (849), die Staalblou- (851) en die Koekoekvink (854) wat nog af en toe hul verskyning maak.

The shrikes are, of course, represented by the ubiquitous Fiscal (707) and the duet-calling Bokmakirie (722) of the lower ground. In summer regular visitors are the European Redbacked Shrike (708) and the rarer Lesser Grey Shrike (706), both of which occur in the thorn scrub area. There are two species of Redwing Shrikes, the Black-crowned (715) and the Three-streaked (714), each of which has a characteristic whistling note that cannot fail to attract attention. In the acacias occurs the Brubru (731), also with a characteristic call note. The Crimson-breasted Bush Shrike (711) and the White Helmet Shrike (727), which is found in small parties, occur at times as wanderers from the bushveld. The Puffback (712) and Boubou (709) Shrikes are also found in the taller trees and matted bush respectively.

When the erythrina trees are flowering in spring they are the resort of four or five species of sunbirds, namely the Black (772), the Marico (755), the Malachite (751), and the White-breasted (763), commonly, and the Greater Double-collared (758), more rarely. White-eyes also come to these flowers. The parasitic Loranthus and the aloes also attract these sunbirds, but not in such numbers at the same time.

The Weaver tribe, the species whose woven nests are suspended from the branches of trees, usually over water or in reed beds, cannot fail to be noticed. These nests are usually made by the Masked Weaver (803) in this area. A bird of very similar appearance but making a short tubular entrance to the nest, is the Cabanis Weaver (792), which has blue-grey legs and feet while those of the Masked Weaver are fleshy brown. Sometimes both species nest in the same trees. The Cape Weaver (799) also formerly nested along the river, but seems to have deserted the area for places where there is less disturbance. The Red-billed Quelea (805) often turns up in flocks in non-breeding plumage.

Of Sparrows there are four species, the Common Cape (786), the Greater (785), the Greyheaded (787), and the Yellow-throated (788), all of which nest in the locality. Of the Canaries, the Yellow-eye (859) and the Black-throated (860), both of which are lively singers, come in small parties. The Streaky-headed Seedeater (867) is common and breeds in the area. The Scaly-feathered (789) and the Red-headed Finches (820) occur commonly in the thorn scrub of the flats. The redbacked Golden-breasted Bunting (874) is often seen in and under the acacias and adjoining trees. On the mountain the Cape (873) and Rock Buntings (872) are common, and the Larklike Bunting (871) is often seen but is subject to restless migrations.

Formerly the Waxbills were common, but trapping in recent years has much depleted their numbers; when proper supervision is provided in the sanctuary, these pretty little birds will undoubtedly return to their old haunts. These are the Melba (830), S.A. Ruddy (833), Little Ruddy (873), Jameson's (835), Orange-breasted (838), Blue (839), Violet-eared (840), Black-cheeked (841) and Common Waxbills (843). The same may be said of the parasitic Pintailed (846), Shaft-tailed (847) and Paradise Widow Birds (852), the Black (849), the Steel-blue (851) and the Cuckoo Finches (854), which still appear at times.

DIE SOOGDIERE VAN DIE WONDERBOOM-NATUURRESERVAAT

deur Dr. Austin Roberts

(Ingehandig deur Dr. R. Bigalke.)

ALHOEWEL daar 'n taamlike verskeidenheid van soogdiere in die Wonderboom-natuurreservaat voorkom, word hulle nie so dikwels soos die voëls gesien nie aangesien die meerderheid nagdiere is.

Bobbejaan. Chacma Baboon

Papio ursinus.

THE MAMMALS OF THE WONDERBOOM NATURE RESERVE

by Dr. Austin Roberts

(Submitted by Dr. R. Bigalke.)

ALTHOUGH there is a fair variety of mammals in the Wonderboom Nature Reserve, they are not seen as often as the birds because the majority are nocturnal in habits.

Chacma Baboons (*Papio ursinus nigripes*) still frequent the area, but they are a mixed blessing, for, while they are interesting to watch, they are destructive to trees and other wild life. Soon after the stones of the Nature Trail had been laid down, baboons could not resist the temptation to turn them over to see what was underneath, a practice which they usually follow when searching for scorpions. Should the Vervet Monkeys (*Cercopithecus aethiops*), which occur on the western side of the Apies River at the Klein Wonderboom, find their way into the nature reserve, this would be equally disastrous, since they are very destructive to birds when nesting; they eat the eggs and young and pull the nests to pieces.

Rock Dassie. Dassie.

Procavia capensis.

Rock Dassies (*Procavia capensis coombsi*) occur in the stony precipices and massed boulders but have been sadly depleted by shooting; this is a pity and will doubtless be remedied when there is proper super-

Bobbejane (*Papio ursinus nigripes*) besoek nog gereeld die gebied maar hul teenwoordigheid is 'n gemengde seën. Hulle is nou wel interessant om dop te hou, maar is terselfdertyd baie vernielsugtig veral sover dit die plant- en dierelewe betref. Kort nadat die natuurpad uitgelê is, het hulle die klippe begin omrol om te sien wat daaronder is. Dit is die bekende metode wat hulle gewoonlik toepas op soek na skerpioene. Indien die Blou-apies (*Cercopithecus aethiops*) wat by die Klein Wonderboom aan die westelike kant van die Apiesrivier voorkom, die natuurreservaat binnedring, mag dit ewe rampspoedig wees, veral vir die voëllewe, daar hulle die voëlneste vernietig en die eiers en die kleintjies verslind.

Die dassie (*Procavia capensis coombsi*) kom tussen die kranse en rotsmassas voor, maar ongelukkig is hulle getalle gevaarlik verminder deurdat daar op hul gejag word. Hierdie jammerlike toestand van sake sal ongetwyfeld reggemaak word wanneer daar behoorlike toesig is. Dassies hou daarvan om op die rotse in die son te lê en bak. As hulle nie gesteur word nie, is dit interessant om te sien hoe hulle tussen die rotse baljaar.

Kolhase (*Lepus saxatilis zuluensis*) en Rooihase (*Pronolagus randensis randensis*) kom nog in die berg voor maar hulle word nie dikwels gesien nie aangesien hulle gedurende die dag in hulle lêplekke skuil.

Klipspringers. Klipspringer.

Oreotragus oreotragus.

Tot betreklik onlangs nog het die Klipspringer (*Oreotragus oreotragus transvaalensis*), die Vaalribbok (*Pelea capreolus*) en die Rooiribbok (*Redunca fulvorufula*) op die berg voorgekom en hulle behoort weer

vision. They are fond of basking on rocks in the sunlight. Where they are not disturbed, they are interesting animals to watch as they play about and scramble up and around the precipices.

Grey Rhebuck. Vaalribbokke.
Pelea capreolus.

Both the Scrub Hare (*Lepus saxatilis zuluensis*) and the Red Hare (*Pronolagus randensis randensis*) still occur on the mountain, but they are not often seen as they lie up in " forms " during daylight.

Until comparatively recently the Klipspringer (*Oreotragus oreotragus transvaalensis*) as well as the Vaalribbok (*Pelea capreolus*) and the Mountain Reedbuck (*Redunca fulvorufula*) lived on the mountain. They should be reintroduced when there is proper supervision, since they will easily be seen by visitors during the day-time.

The Steenbok (*Raphicerus campestris*) should also be reintroduced and will probably frequent the more open veld on the southern side of the Reserve.

At one time bats and porcupines lived in the large cave facing the Wonderboom Poort, but they have been frightened off by human intrusion.

Bats are the only group of mammals that are capable of true flight. This is achieved by means of wings, but whereas the wings of birds are clothed with feathers, the wings of bats consist of thin elastic membranes stretched between the long bones. It is by means of these membranous wings that bats are able to fly.

More than a dozen kinds of bats are found in the Nature Reserve and most of them belong to the group of insect-eating bats. Among them is the Tomb Bat (*Taphozous mauritianus*). The name of the Tomb Bat is derived from the fact that when a French expedition visited Egypt early in the nineteenth century, it found this bat living in large numbers in the ancient tombs.

ingevoer te word sodra daar behoorlike toesig is. Ook die Steenbok (*Raphicerus campestris*) behoort weer ingebring te word en sal waarskynlik in die suidelike gedeelte van die reserwe op die oop veld hou.

Steenbok.
Raphicerus campestris.

Die vlermuise en ystervarke wat vroeër in die groot grot aan die kant van Wonderboompoort gehou het, is ongelukkig deur die indringing van mense verdryf.

Vlermuise is die enigste soogdiergroep wat ware vliegvermoë besit. Die vlerke van vlermuise verskil egter van dié van voëls daarin dat, in plaas van vere, dit uit dun elastiese vliese tussen die voor- en agterbene en die verlengde vingers bestaan.

Meer as 'n dosyn soorte vlermuise, die meeste waarvan vrugtevreters is, kom in hierdie natuurreservaat voor. Een van die vlermuissoorte wat hier voorkom, is die Witlyf- of Grafkeldervlermuis (*Taphozous mauritianus*) wat sy naam ontleen aan die ou Egiptiese grafkelders waar 'n Franse ekspedisie hulle vroeg in die negentiende eeu in groot getalle aangetref het.

Die Geel-Vrugtevlermuis (*Eidolon helvum*), een van die twee soorte vrugtevlermuise wat in die natuurreservaat voorkom, is 'n trekdier wat net in die somermaande in Suid-Afrika voorkom.

Van die kleinere roofdiere het 'n aantal soorte tot onlangs nog hier voorgekom en mag moontlik nog teenwoordig wees. Die Rooimuishond (*Myonax cauui cauui*) kom sekerlik nog hier voor want hulle is nog teenwoordig in die Daspoortrante by Capital Park waar die hoenderboere

Natal Clinging Bat. Natalse Vasklou-vlermuis.

Miniopterus natalensis.

Only two kinds of fruit-eating bats seem to occur in the Wonderboom Nature Reserve and one of them is the Giant or Yellow or Migratory Fruit-Bat (*Eidolon helvum*). It is a migratory bat and is found in South Africa only in the summer.

Slender Mongoose. Rooimuishond.

Myonax cauui.

Of the smaller kinds of *Carnivora* a number of species occurred in the area until recently and may still do so. The diurnal Slender Mongoose (*Myonax cauui cauui*) is sure to occur there still as it is present on the Daspoort Hills at Capital Park, much to the annoyance of poultry keepers. A colony lives in one of the hill-side enclosures in the National Zoo-

baie las van hulle ondervind. 'n Kolonie hou in die Nasionale Dieretuin in een van die groot hokke teen die heuwel. Twee soorte muskejaatkatte, die Vaalboskat (*Felis lybica rusticana*), die Stinkmuishond (*Ictonyx orangiae pretoriae*) en die Slangmuishond (*Poecilogale albinucha transvaalensis*) kom ongetwyfeld nog hier voor, maar die Kommetjiegatmuishond (*Atilax paludinosus transvaalensis*) en twee soorte otters het waarskynlik pad gegee omdat die gebied nie meer veilig genoeg was nie, hoewel hulle miskien nog snags hulle opwagting daar mag maak.

Die Rietrot (*Thryonomys swinderianus*) het vroeër op die rivierwalle tussen die digte gras en riete gehou.

Van die groot aantal muise, rotte en skeerbekmuise in die reserwe sal die Gestreepte Veldmuis (*Rhabdomys pumilio dilectus*) en die Vleimuis (*Otomys irroratus randensis*), wat in gras en vleiagtige omgewings hou, waarskynlik die meeste gesien word aangesien hulle dagdiere is. Selfs hierdie diere sal nie dikwels gesien word nie aangesien hulle gedurig op hul hoede is vir enige verdagte geluide en bewegings in hul omgewing.

Die mooi Gestreepte Veldmuisie is wyd oor Suid-Afrika versprei en word maklik aan die vier swart en bruin strepies op sy rug herken. Die donker strepe word geskei deur drie min of meer wit strepies. Hierdie muise maak gebruik van muisvoetpaadjies en skuil in vlak gate.

Die volgende lys van die soogdiere in die Wonderboom-natuurreservaat is opgestel deur wyle dr. Austin Roberts:—

SOOGDIERE VAN DIE WONDERBOOM-NATUURRESERVAAT.

1. Bobbejaan, *Papio ursinus nigripes*. Dagdier. Heuwelhange en berg, het voorheen in grotte geslaap.
2. Bosskeerbekmuis, *Myosorex transvaalensis*. Nagdier. In fynruigtes.
3. Klein-rooiskeerbekmuis, *Crocidura hirta hirta*. Oral in fynruigtes.
4. Mariko-skeerbekmuis, *Crocidura mariquensis*. Oral in fynruigtes.
5. Grys-skeerbekmuis, *Crocidura silacea*. Oral in fynruigtes.
6. Swart-skeerbekmuis, *Crocidura pilosa*. Tussen gras en onkruid.
7. Dwergskeerbekmuis, *Suncus orangiae*. In termietneste.
8. Geel-vrugtevlermuis, *Eidolon helvum*. Leef op solders of hang aan takke van hoë bome. Kom slegs in die somer in Suid-Afrika voor en leef van vye en ander sagte vrugte.
9. Gewone Vrugtevlermuis, *Epomophorus crypturus*. Hang aan takke van groot bome, lewe van vye en ander vrugte, moontlik 'n vaste inwoner of 'n plaaslike trekdier.
10. Blaarneusvlermuis, *Rhinolophus geoffroyi augur*. Woon in grotte, solders of ander donker skuilplekke waar hulle met hul agterpote aan die dakke hang. Dikwels in groot getalle bymekaar. Lewe van insekte.
11. Bosveldvlermuis, *Rhinolophus simulator*. Soortgelyk aan die vorige een, ook wat gewoontes betref, maar kleiner.
12. Darling-vlermuis, *Rhinolophus darlingi*. Klein, soos vorige een maar met langer hare. Verkies lugtige grotte, is volop by Baviaanspoort.
13. Saalneusvlermuis, *Rhinolophus empusa*. Klein soos die vorige een maar vorm van die saal verskil. Skuil gewoonlik in taamlike groot getalle in grotte.
14. Drietandvlermuis, *Cloeotis percivali australis*. In grotte met klein ingange. Voorheen agter in groot grot van Wonderboom-reservaat.

logical Gardens. Two kinds of Genets, the Wild Cat (*Felis lybica rusticana*), the Striped Polecat (*Ictonyx orangiae pretoriae*) and the African Weasel or Snake Muishond (*Poecilogale albinucha transvaalensis*) doubtless still occur in the Reserve. But the water-loving Water Mongoose (*Atilax paludinosus transvaalensis*) and two kinds of Otters probably find the area no longer safe, though they are prone to wander and may sometimes turn up at night.

Formerly the Cane-Rat (*Thryonomys swinderianus*) also occurred on the river-banks where there was dense grass and reedy growths.

There are numerous kinds of mice, rats and shrews in the Reserve, but the only ones likely to be seen on account of their diurnal habits are the Striped Field Mouse (*Rhabdomys pumilio dilectus*), which occurs in weeds and grass, and the Vlei Otomys (*Otomys irroratus randensis*) which occurs along the river in grassy and marshy situations. Even these can only be seen by careful watching where they are known to occur, since they are very shy of noise and movement around them.

The pretty little Striped Field Mouse is widely distributed over South Africa and can be recognised by means of the four black or brown stripes along the back. There are three more or less white stripes between the dark ones. They have runways in grass and weeds and hide in shallow burrows.

The following is a list of the mammals recorded in the Wonderboom Nature Reserve by the late Dr. Austin Roberts:—

MAMMALS OF THE WONDERBOOM NATURE RESERVE.

1. Chacma Baboon, *Papio ursinus nigripes*. Diurnal. Hill-side and mountain, formerly slept in caves.

2. Bush Shrew, *Myosorex transvaalensis*. Nocturnal. In tangles of bush, weeds and grass.

3. Lesser Red Shrew, *Crocidura hirta hirta*. Anywhere in tangles.

4. Marico Shrew, *Crocidura mariquensis*. Anywhere in tangles.

5. Grey Shrew, *Crocidura silacea*. Anywhere in tangles.

6. Black Shrew, *Crocidura pilosa*. In grass and weeds.

7. Dwarf or Termite Shrew, *Suncus orangiae*. In termite nests.

8. Migratory, Giant or Yellow Fruit-Bat, *Eidolon helvum*. Hide in lofts, or hang from branches of large trees, live on figs and other soft fruit, here only in summer.

9. Ordinary Fruit-Bat, *Epomophorus crypturus*. Hang from branches of large trees, feed on figs and other fruit, probably resident or locally migratory.

10. Geoffroy's Saddle-nosed Bat, *Rhinolophus geoffroyi augur*. In caves, lofts or dark shelters where undisturbed, suspended by hind feet from roof of shelter, often in large numbers together. Diet, insects.

11. Lesser Saddle-nosed Bat, *Rhinolophus simulator*. Similar to last but smaller, habits the same.

12. Darling's Bat, *Rhinolophus darlingi*. Small like last, but darker with longer hair, prefers draughty caves, common at Baviaanspoort.

15. Kaapse Blaarneusvlermuis, *Hipposideros caffer caffer*. Hang aan dakke van grotte, gewoonlik in groepe.

16. Natalvlermuis, *Miniopterus natalensis*. Hang gewoonlik in baie groot getalle aan dakke van groot grotte. Maak kwetter-geluidjies wanneer gesteur.

17. Kaapse Langhaarvlermuis, *Myotis tricolor*. Kom gewoonlik saam met laasgenoemde en ander soorte in grotte voor.

18. Roeskleurvlermuis, *Eptesicops rusticus*. Baie klein, skuil in skeure in bome.

19. Kaapse Dakvlermuis, *Eptesicus capensis capensis*. Skuil onder dakrande en geute van geboue en in skeure in bome.

20. Geel-dakvlermuis, *Scotophilus nigrita dinganii*. Skuil onder dakrande of in ou houtkapperneste.

21. Witlyfvlermuis, *Taphozous mauritianus*. Hang met agterbene aan takke van groot bome of aan die top van beskutte mure; beweeg rats met die agterpote om die stam of langs die muur om te vlug.

22. Bocage se Losstertvlermuis, *Tadarida bocagei*. In groot getalle in klipskeure en onder huisdakke. Indien gesteur verraai hulle hul teenwoordigheid deur kwetter-geluidjies terwyl hul dieper in skuilplek inkruip.

23. Platkop-losstertvlermuis, *Platymops petrophilus*. Kom gewoonlik voor onder plat klippe.

24. Rooikol-muskejaatkat, *Genetta rubiginosa*. Tussen bosse en rotse.

25. Kleinkol-muskejaatkat. *Genetta felina pulchra*. Tussen rotse.

26. Rooimuishond, *Myonax cauui cauui*. Langs rivier en tussen bosse en rotse.

27. Rooimeerkat, *Cynictis penicillata brachyura*. 'n Dagdier wat in kolonies in gate woon. Gate gewoonlik in sandvlaktes maar, waar die diere gesteur word, ook tussen bosse en rotse.

28. Kommetjiegatmuishond, *Atilax paludinosus transvaalensis*. Oorwegend dagdiere maar waar hulle gesteur word nagdiere. Skuil tussen riete, digte bosse en selfs gate naby riviere. Hou hoofsaaklik in water en is lief vir krappe.

29. Vaalboskat, *Felis lybica rusticana*. Skuil bedags tussen bosse en in koppies. Loop snags rond.

30. Stinkmuishond, *Ictonyx orangiae pretoriae*. Word snags omtrent oral aangetref en skuil bedags in miershope en gate.

31. Slangmuishond, *Poecilogale albinucha transvaalensis*. In ruigtes en heuwelhange. Word dikwels bedags in groepies van drie tot vier gesien waar hulle agtermekaar loop en soos 'n swart-en-wit slang lyk.

32. Klein-otter, *Lutra maculicollis maculicollis*. In die Apiesriver waar dit nou skaars is. Is baie tuis in water en leef van vis asook ander klein diere. Lê snags lang afstande af, veral langs watervore.

33. Groot-otter, *Aonyx capensis coombsi*. Soos die vorige een, maar groter. Hou van krappe, watervoëls en hoenders. Lê snags lang afstande af, veral langs watervore.

34. Dassie, *Procavia capensis coombsi*. In grotte en klipskeure in kranse. Lê dikwels in die son en bak op kranse en rotslyste.

13. Empusa Saddle-nosed Bat, *Rhinolophus empusa.* Small like last, but differing in shape of saddle, shelters in caves in fair numbers as a rule.

14. Trident Bat, *Cloeotis percivali australis.* In caves with small entrances, formerly in back of large cave at Wonderboom.

15. Leaf-nosed Bat, *Hipposideros caffer caffer.* In caves suspended from roof, usually in parties.

16. Clinging Bat, *Miniopterus natalensis.* In large caves, clinging to roof, usually in very large numbers. Twitter in concert when alarmed.

17. Red Bat, *Myotis tricolor.* Clinging to roof of caves in association with the last and other species.

18. Rusty Bat, *Eptesicops rusticus.* Very small, hiding in crevices of trees.

19. House-Bat, *Eptesicus capensis capensis.* In crevices of buildings or trees.

20. Yellow Bat, *Scotophilus nigrita dinganii.* Under the eaves of buildings, or in old Barbet or Woodpecker nests.

21. Tomb Bat, *Taphozous mauritianus.* Clings to trunks of large trees, sometimes against the top of sheltered walls, scurries with its back feet as it is suspended by them round the trunk or along the wall to escape.

22. Bocage's Free-tailed Bat, *Tadarida bocagei.* In rock crevices or under the roof of buildings in large numbers, disclosing their presence by twittering when alarmed and crawling away to the back of the shelter.

23. Flat-faced Free-tailed Bat, *Platymops petrophilus.* Rather solitary, hiding under flat split rocks.

24. Rusty-spotted Genet, *Genetta rubiginosa.* In bush and rocks.

25. Small-spotted Genet, *Genetta felina pulchra.* Amongst rocks.

26. Slender Mongoose, *Myonax cauui cauui.* Along river and in bush or rocks. Diurnal in habits.

27. Yellow Mongoose, *Cynictis penicillata brachyura.* Diurnal. In colonies of burrows as a rule in the flats, but where harried in the bush or amongst rocks.

28. Water Mongoose, *Atilax paludinosus transvaalensis.* Diurnal as a rule, but where disturbed nocturnal. Hides in reedbeds, dense bush or even holes near rivers. Largely aquatic, fond of crabs.

29. African Wild Cat, *Felis lybica rusticana.* Hides in bush and koppies during daylight, wandering far at night.

30. Stink Muishond, *Ictonyx orangiae pretoriae.* Found almost anywhere at night, hiding in termite hills or holes in daylight.

31. Snake Muishond, African Weasel, *Poecilogale albinucha transvaalensis.* In bush and hill-sides, often seen in daylight in parties of three or four following one behind the other and resembling a black and white snake.

32. Spotted-necked Otter, *Lutra maculicollis maculicollis.* In the Apies River but rare now; feeds on fish but also many other animals, wandering long distances at night; much at home in the water.

35. Rooiribbok, *Redunca fulvorufula.* Op die berg.

36. Vaalribbok, *Pelea capreolus.* Het voorheen op die berg voorgekom en behoort weer ingevoer te word.

37. Bosbok, *Tragelaphus scriptus sylvaticus.* Kom wes van die Apiesrivier voor en behoort weer ingevoer te word.

38. Rooibok, *Aepyceros melampus.* Behoort goed te aard in die reservaat en behoort ingevoer te word.

Bosbok. Bushbuck.

Tragelaphus scriptus.

39. Gewone Duiker, *Sylvicapra grimmia transvaalensis.* Kom wes van die Apiesrivier voor en behoort ingevoer te word.

40. Klipspringer, *Oreotragus oreotragus transvaalensis.* Het voorheen in die reservaat voorgekom en behoort vanaf Oos-Transvaal ingevoer te word.

41. Oorbietjie, *Ourebia ourebi ourebi.* Kan ingevoer word maar aangesien hulle op die dorpsgronde, Groenkloof en Rietvallei voorkom, mag dit miskien nie nodig wees nie.

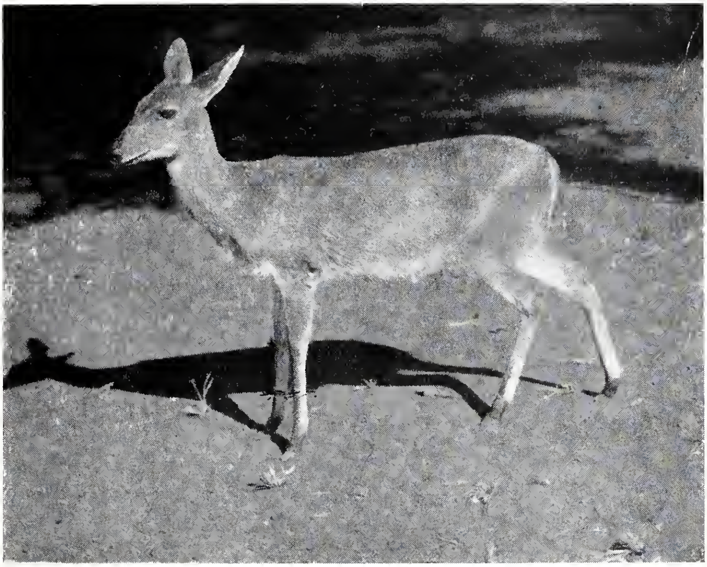
42. Steenbok, *Raphicerus campestris fulvorubescens* of *natalensis.* Net soos laasgenoemde soort hou hulle meer van die oop veld en kom hulle op die dorpsgronde, Groenkloof en Rietvallei voor.

43. Ystervark, *Hystrix africae-australis.* Het voorheen in die groot grot gehou en mag nog in sommige van die kleiner grotte in die omgewing voorkom.

33. Clawless Otter, *Aonyx capensis coombsi.* Like the last, but larger and fond of crabs, but also waterfowl and poultry, wandering far at night, especially along water-furrows.

34. Rock Dassie, *Procavia capensis coombsi.* In caves and cliff crevices, often seen basking on rocks and ledges of cliffs.

35. Mountain Reedbuck, Rooiribbok, *Redunca fulvorufula.* On the mountain.



Grey Duiker. Gewone Duiker.
Sylvicapra grimmia.

36. Vaalribbok, *Pelea capreolus.* Formerly on the mountain, and should be established again.

37. Bushbuck, *Tragelaphus scriptus sylvaticus.* Occurs to the west of Apies River and should be introduced.

38. Impala, *Aepyceros melampus.* Suitable for them at Wonderboom and should be introduced.

39. Grey Duiker, *Sylvicapra grimmia transvaalensis.* Wonderboom ideal for this antelope.

40. Klipspringer, *Oreotragus oreotragus transvaalensis.* Should be introduced from eastern Transvaal as it formerly occurred at Wonderboom.

41. Oribi, *Ourebia ourebi ourebi.* Might be introduced, but occurs on townlands, Groenkloof and Rietvallei, so this may not be necessary.

42. Steenbok, *Raphicerus campestris fulvorubescens* or *natalensis.* Like the last, more suited to open veld and found on townlands, Groenkloof and Rietvallei.

44. Rietrot, *Thryonomys swinderianus.* Kom langs die Apiesrivier en by Garstfontein en Rietvallei voor maar slegs in gebiede waar hulle nie baie gesteur word nie.

45. Klip-waaierstertmuis, *Gliriscus eastwoodae.* Kom in die groot en kleiner grotte voor.

46. Bos-waaierstertmuis, *Claviglis woosnami pretoriae.* Woon in hol boomstamme.

47. Vleimuis, *Otomys irroratus randensis.* Hou in die moerasagtige grond langs die Apiesrivier.

48. Klein-Klimmuis, *Dendromus jamesoni.* Leef in ou wewervoëlneste en die lang gras langs die Apiesrivier.

49. Swartoor-grasmuis, *Dendromus* (*Poëmys*) *melanotis pretoriae,* Leef in gate in die sandvlaktes aan die voet van die Magaliesberg.

50. Huismuis, *Mus musculus.* Kom in huise en rotsagtige plekke in die omgewing van huise voor.

51. Swartrot, *Rattus rattus* rasse. Hou in skure, stalle en ander buitegeboue en woonhuise. Dikwels ook rotsagtige plekke

Dwergmuis. Dwarf Mouse.

Leggada minutoides.

52. Dwergmuis, *Leggada minutoides pretoriae.* Kom oral op die vlaktes en heuwels voor waar dit dikwels onder ou sinkplate en boomstompe skuil. Graaf soms gate.

53. Moedermuis of Vaalveldmuis, *Mastomys natalensis microdon* of *marikquensis.* Algemeen in die veld en veral volop in bewerkte lande.

54. Afrikaanse Rot, *Aethomys chrysophilus pretoriae.* Algemeen in doringveld, op vlaktes en teen heuwelhange.

43. Porcupine. *Hystrix africae-australis.* Formerly hid in the large cave and probably still hides in other smaller ones nearby.

44. Cane Rat, *Thryonomys swinderianus.* Occurs along the Apies and at Garstfontein and Rietvallei, but only in little disturbed areas.

45. Rock Dormouse, *Gliriscus eastwoodae.* Occurs in the large and smaller caves.

46. Arboreal Dormouse, *Claviglis woosnami pretoriae.* Frequents hollow trees.

47. Vlei Otomys, *Otomys irroratus randensis.* Frequents the marshy ground along Apies River.

48. Climbing Mouse, *Dendromus jamesoni.* Occupies old weaverbird nests and the long grass along the Apies River.

49. Terrestrial Climbing Mouse, *Dendromus (Poëmys) melanotis pretoriae.* Lives in burrows in the sandy flats below the Magaliesberg.

50. House Mouse, *Mus musculus.* Frequents houses, but also rocky places nearby.

Baby Steenbok. Steenboklammetjie.
Raphicerus campestris.

51. Black Rat, *Rattus rattus* races. Frequents barns, stables and other outbuildings or dwellings, but often takes to rocky places in the bush.

52. Dwarf Mouse, *Leggada minutoides pretoriae.* Anywhere in the veld or hills, hiding often under sheets of iron or planks or logs, sometimes burrowing too.

53. Multimammate Mouse, *Mastomys natalensis microdon* or *marikquensis.* Common in the veld, most plentiful in cultivated lands.

55. Namakwa-klipmuis, *Aethomys namaquensis monticularis.* Volop in klipkoppies waar dit in klipskeure, gevul met droë gras, woon.

56. Mogg se Doringboomrot, *Thallomys moggi moggi.* Maak nes hoog in die takke of onder die bas van bome, veral doringbome, of in hol boomstamme of in gate tussen boomwortels. Kom teen skemerdonker uit en hardloop op die boomtakke. Leef van doringboomgom en -saad.

57. Vleirot, *Dasymys incomptus.* Redelik skaars maar is al op die walle van die Apiesrivier gevang.

58. Gestreepte Veldmuis, *Rhabdomys pumilio dilectus.* 'n Dagdier en gevolglik goed bekend; hou tussen gras en onkruid waar hul voetpaadjies na die vlak gate lei.

59. Eenstreepmuis, *Lemniscomys griselda spinalis.* Kom waarskynlik tussen die doringstruike by die Wonderboom voor aangesien hulle op die Pyramid-reeks, nie ver hiervandaan nie, voorkom.

60. Kolhaas, *Lepus saxatilis zuluensis.* Hou in die struike aan die voet van die heuwel waar hul gedurende die dag in lê-plekke of onder bosse skuil.

61. Rooihaas, *Pronolagus randensis randensis.* Algemeen tussen die rotse en plantegroei op die berg waar hul in lêplekke en soms in die grotte skuil. Wanneer hulle skrik uiter hul 'n harde skreegeluid wat waarskynlik bedoel is om potensiële vyande die skrik op die lyf te jaag.

54. African Rat, *Aethomys chrysophilus pretoriae*. Common in the acacia bush on flats or hill-sides.

55. Namaqua or Rock Mouse, *Aethomys namaquensis monticularis*. Inhabits split rocks which are filled with long straws, common on all rocky hills.

56. Mogg's Black-tailed Bat, *Thallomys moggi moggi*. Builds nests in large trees, especially acacia, either high up among branches or may be behind loose bark; also lives in burrows at the roots of trees, or in hollow trees; emerges at dusk and runs along the branches. Feeds on acacia gum and seeds.

57. Marsh Rat, *Dasymys incomtus*. Rather rare, but has been taken on the banks of the Apies River.

58. Striped Field Mouse, *Rhabdomys pumilio dilectus*. Diurnal and therefore well known; occurs in grass and weeds, in which it has runways leading to shallow burrows.

59. Bushveld Striped Mouse, *Lemniscomys griselda spinalis*. Probably occurs in the thornbush at the Wonderboom, as it certainly does not far off on Pyramids range.

60. Bush Hare, *Lepus saxatilis zuluensis*. Frequents the scrub at the foot of the hill, lying up during the daylight in a "form" under or inside a bush.

61. Red Hare, *Pronolagus randensis randensis*. Common amongst the rocks and vegetation on the mountain, at times lying up in a "form" amongst the rocks or vegetation, sometimes inside the caves. Utters a diabolical scream when alarmed, probably to scare enemies.